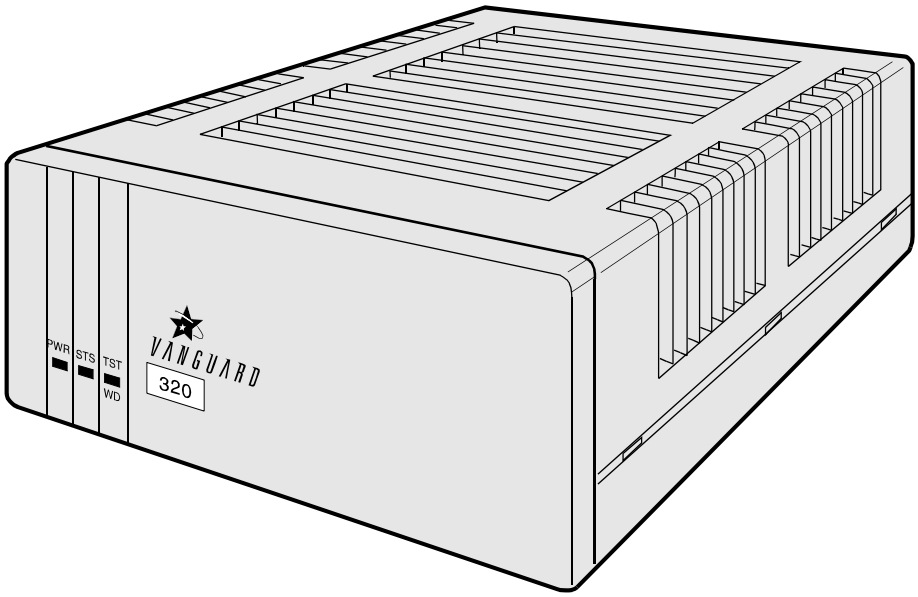
Vanguard Managed Solutions



Vanguard 320 Installation Manual

Notice

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Radio Frequency Interference Regulations

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules, CISPR22 and EN55022. These limits are designed to provide reasonable protection against interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Changes or modifications not expressly approved by Vanguard Managed Solutions could void the user's authority to operate the equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

This is a Class B product. Operation of this equipment in a residential environment may cause radio interference, in which case the user may be required to take adequate measures to correct the interference at his/her own expense.

This product was verified under test conditions that included the use of shielded DTE cable(s). A cable equipped with a ferrite bead may also have been used. Use of different cables will invalidate verification and increase the risk of causing interference to radio and TV reception.

You can obtain the proper cables from Vanguard Managed Solutions.

Declaration of Conformity

The Vanguard 320 is compliant with the following European Union Directive and Common Technical Regulations:

- Council Directive 89/336/EEC (EMC Directive) as amended by
  - Council Directive 92/31/EEC
  - Council Directive 93/68/EEC
- Council Directive 73/23/EEC (Low Voltage Directive) as amended by
  - Council Directive 93/68/EEC
- I-CTR 2 as specified in Commission Decision 96/71/EC
- I-CTR 3 as specified in Commission Decision 94/797/EC

Notice (continued)

Telecommunications Regulations

Equipment that complies with Part 68 of the FCC rules includes a label or permanent marking on the printed circuit board that connects to the network that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (*e.g.*, 03 is a REN of 0.3).

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary. The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult a trained technician.

Equipment that meets the applicable Industry Canada Terminal Equipment Technical Specifications is conformed by the registration number. Equipment that complies with Industry rules includes a label or permanent marking on the printed circuit board that connects to the network. The abbreviation, IC, before the registration number signifies that the registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

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To comment on this manual, please send e-mail to LGEN031@vanguardms.com

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Overview

Introduction

This manual covers features, hardware, installation, applications, and specifications for the Vanguard 320.

Audience

This manual is intended for users of the Vanguard 320.

Trademarks

The following are trademarks or registered trademarks of their respective companies or organizations.

Product	*Company/Organization*
Crosstalk	Digital Communications Associates, Inc.
HyperTerminal	Hilgreave, Inc.
ProComm	Datastorm Technologies, Inc.
Windows	Microsoft Corporation
Vanguide	Vanguard Managed Solutions, LLC
Vanguard	Vanguard Managed Solutions, LLC
Vanguard Applications Ware	Vanguard Managed Solutions, LLC

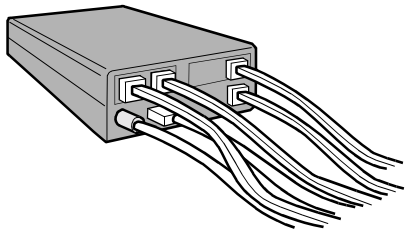
How to Use This Manual

Follow these steps to use this manual to install your Vanguard 320.

1 Familiarize Yourself with the Vanguard 320

See Chapter 1, About the Vanguard 320

2 Install the Vanguard 320 Hardware



See Chapter 2, Installing Vanguard 320 Hardware

3 Power up the Vanguard 320 and Access the CTP

See Chapter 3, Powering up the Vanguard 320

Chapter Descriptions

This table briefly describes each chapter of this manual.

This section...	*Describes...*
Chapter 1, About Vanguard 320	the Vanguard 320.
Chapter 2, Installing Vanguard 320 Hardware	the shipment contents, hardware installation and cabling for the Vanguard 320.
Chapter 3, Powering on the Vanguard 320	the power up sequence and diagnostics, and how to access the CTP.
Chapter 4, Vanguard 320 Software	operating software and configuration memory (CMEM) files for Vanguard 320.
Appendix A, Specifications	the physical and environmental specifications and power requirements for the Vanguard 320.
Appendix B, Vanguard 320 Cabling	identification of all cabling and connections for the Vanguard 320.
Appendix C, Troubleshooting Your Vanguard 320	actions you can take to correct problems you may encounter with your Vanguard 320.
Appendix D, Software License and Regulatory Information	software license and regulatory information.

Related Documentation

Introduction

This section describes related documentation and where to obtain documentation.

Other Documentation

All documentation is provided on the Vanguide CD-ROM and the Vanguard Managed Solutions web site. For a list of related documentation, refer to the *Documentation Roadmap* provided at the front of this manual.

Includes:
• *Vanguard Applications Ware Basic Protocols* (Part Number T0106) • *IP and LAN Feature Protocols* (Part Number T0100) • *SNA Feature Protocols* (Part Number T0101) • *Serial Feature Protocols* (Part Number T0102) • *Multi-Service Feature Protocols* (Part Number T0103) • *Multimedia Feature Protocols* (Part Number T0104) • *Alarms and Reports Manual* (Part Number T0005) • *Software Installation and Coldloading Manual* (Part Number T0028)
• *IP and LAN Feature Protocols* (Part Number T0100)
• *SNA Feature Protocols* (Part Number T0101)
• *Serial Feature Protocols*(Part Number T0102)
• *Multi-Service Feature Protocols* (Part Number T0103)
• *Multimedia Feature Protocols* (Part Number T0104)
• *Vanguard Basic Protocols* (Part Number T0106)

Vanguide CD-ROM

The Vanguide CD-ROM contains all Vanguard documentation available at the time of release. A Vanguide CD-ROM is available for each Vanguard product. To order a copy of the Vanguide CD-ROM, please contact a Vanguard Managed Solutions representative.

WWW

Check the web site for the latest documentation:

http://www.vanguardms.com/support/documentation

Special Notices

The following notices emphasize certain information in the guide. Each serves a special purpose and is displayed in the format shown:

■Note

Note is used to emphasize any significant information.

Caution

Caution provides you with information that, if not followed, can result in damage to software, hardware, or data.

Warning

Warning is the most serious notice, indicating that you can be physically hurt.

Simplified Chinese

特别通告

以下通告强调指南中的某些信息。
每条信息均有一个特殊的目的并以如下格式显示:

■注解

注解用于强调任何重要的信息。

切记

切记提供您这类信息，如果不遵照信息的要求，可能导致软件、硬件或数据的损坏。

警告

警告是最严重的通告，表明您的身体可能被伤害。

Danish

S¾rlige overskrifter

F¿lgende overskrifter fremh¾ver nogle af oplysningerne i vejledningen. De tjener hvert et specifikt formŒl og vises i f¿lgende format:

■Bem¾rk

Bem¾rk anvendes til at fremh¾ve vigtig information.

Forsigtig

Forsigtig understreger oplysninger, som, hvis de ikke bliver fulgt, kan f¿re til beskadigelse af software, hardware eller data.

Advarsel

Advarsel er den mest alvorlige overskrift, og tilkendegiver mulig personskade.

Dutch

Bijzondere vermeldingen

De volgende vermeldingen besteden extra aandacht aan bepaalde informatie in de handleiding. Elke vermelding heeft een eigen nut en wordt in de volgende opmaak weergegeven:

Opmerking
Een opmerking wordt gebruikt om belangrijke informatie te benadrukken.

Let op

Dit kopje geeft aan dat u de beschreven instructies moet volgen om schade aan de software, hardware of gegevens te vermijden.

Waarschuwing

Een waarschuwing is de belangrijkste vermelding. Indien u deze niet volgt, kan dit tot lichamelijke verwondingen leiden.

Finnish

Erityisilmoitukset

Seuraavat ilmoitukset korostavat tiettyjŠ oppaan tietoja. Kullakin on oma erikoistarkoituksensa ja ne esitetŠŠn seuraavassa muodossa:

Huomaa
Huomautusta kŠytetŠŠn korostamaan tŠrkeŠtŠ tietoa.

Vaara

Vaarailmoitus antaa tietoa, jonka huomiotta jŠttŠminen voi johtaa ohjelmiston, laitteiston tai tietojen vahingoittumiseen.

Varoitus

Varoitus on kaikkein vakavin ilmoitus ja se kertoo mahdollisesta loukkaantumisriskistŠ.

French

Messages spŽciaux

Les messages suivants mettent en valeur certaines informations dans le guide. Chacun dÕeux remplit une fonction spŽciale et est affichŽ dans le format indiquŽ :

Important
Important est utilisŽ pour souligner des informations critiques au sujet dÕune procŽdure.

Mise en Garde

Une mise en garde vous fournit des informations qui, si elles ne sont pas observŽes, peuvent se traduire par des dommages pour le logiciel, le matŽriel ou les donnŽes.

Avertissement

Un avertissement constitue le message le plus sŽrieux, indiquant que vous pouvez subir des blessures corporelles.

German

Besondere Hinweise

Durch die folgenden Hinweise werden bestimmte Informationen in diesem Handbuch hervorgehoben. Jeder Hinweis dient einem bestimmten Zweck und wird im dargestellten Format angezeigt:

Wichtig

WICHTIG wird zur Betonung signifikanter Angaben zu Vorgehensweisen verwendet.

Vorsicht

Ein Vorsichtshinweis macht Sie darauf aufmerksam, da§ Nichtbefolgung zu Software-, Hardware- oder DatenschŠden fŸhren kann.

Warnung

Eine Warnung weist Sie darauf hin, da§ ernsthafte Kšrperverletzungsgefahr besteht.

Italian

Simboli speciali

I seguenti simboli, ciascuno con una speciale funzione, evidenziano determinate informazioni allÕinterno del manuale. Il formato quello riportato qui di seguito.

Nota

Questo tipo di avvertimento viene utilizzato per evidenziare tutte le informazioni significative relative ad una procedura.

Attenzione

Questo tipo di avvertimento fornisce informazioni che, se non vengono seguite, possono provocare danni al software, allÕhardware o ai dati.

Avvertenza

Questo tipo di avvertimento indica la presenza di condizioni di rischio che possono causare lesioni fisiche. Si tratta del simbolo pi importante al quale prestare attenzione.

Japanese

特別表記

ガイド内では、以下の表記を使って特に注意する必要のある情報が提供されます。各表記にはそれぞれ目的があり、次の形式で表示されます。

■ 重要
　重要な情報が記述されています。

注意

記述されている内容に従わない場合、ソフトウェア、ハードウェア、またはデータが壊れる可能性があります。

警告

最も重要な情報が記述されています。身体的な障害を被る可能性があります。

Korean

일러두기

이 설명서에는 사용자에게 특정한 내용을 강조하기 위해서 다음 내용이 포함되어 있습니다.

■참고
　중요한 정보를 강조하는데 사용합니다.

주의

소프트웨어나 하드웨어, 또는 데이터를 손상시킬 수 있으므로 주의가 필요한 상황을 알립니다.

경고

사용자의 안전에 위험을 알리는 가장 심각한 수준의 경고입니다.

Norwegian

Spesielle merknader

Merknadstypene nedenfor representerer en bestemt type informasjon i hŒndboken. Hver merknadstype har en spesiell hensikt og vises pŒ f¿lgende format:

■**Merk**
　Merk brukes for Œ fremheve viktig informasjon.

Forsiktig

Forsiktig gir deg informasjon om situasjoner som kan f¿re til skade pŒ programvare, datamaskin eller data dersom den blir fulgt.

Advarsel

Advarsel er den mest alvorlige merknaden og indikerer at du kan bli fysisk skadet.

Portuguese/ Portugal

Avisos Especiais

Os avisos que se seguem real am certas informa ›es neste guia. Cada um deles serve um objectivo especial e Ž visualizado no formato apresentado:

Nota

Nota Ž utilizado para real ar qualquer informa ‹o importante.

Aten ‹o

Aten ‹o faculta-lhe informa ›es que, se n‹o forem cumpridas, poder‹o provocar danos no software, hardware ou nos dados.

Cuidado

Cuidado constitui o aviso mais grave, o qual indica que poder‡ ficar fisicamente ferido.

Spanish/Spain

Notificaciones especiales

Las siguientes notificaciones ponen Žnfasis sobre determinada informaci—n de la gu’a. Todas tienen un prop—sito especial y se muestran con el formato siguiente:

Nota

Las notas se utilizan para destacar determinada informaci—n de importancia.

Advertencia

Las advertencias le proporcionan informaci—n que debe seguirse, si no desea que el software, el hardware o los datos puedan verse da–ados.

Aviso

Los avisos son las notificaciones de car‡cter m‡s importante e indican la posibilidad de da–os f’sicos para el usuario.

Swedish

Speciella beteckningar

Fšljande beteckningar betonar viss information i handboken. Var och en har ett speciellt syfte och visas i formatet nedan:

OBS!

OBS! anvŠnds fšr att betona viktig information.

Viktigt

Viktigt ger dig information som, om den inte fšljs, kan resultera i skada i programvara, maskinvara eller data.

Varning

Varning Šr den mest allvarliga beteckningen och den indikerar att du kan skadas fysiskt.

Customer Information

Customer Questions

Customers who have questions about Vanguard Managed Solutions products or services should contact your VanguardMS representative or visit this website for product, sales, support, documentation, or training information:

http://www.vanguardms.com

Comments About This Manual

To help us improve our product documentation, please complete the comment card included with this manual and return it by fax to (508) 339-9592. If you prefer, provide your name, company, and telephone number, and someone in the documentation group will contact you to discuss your comments.

Customer Response Card

Vanguard Managed Solutions would like your help in improving its product documentation. Please complete and return this card by fax to (508) 339-9592; Attention: Product Documentation, to provide your feedback.

To discuss comments with a member of our documentation group, provide telephone information at the bottom of this page. **Thank you** for your help.

Name _____

Company Name _____

Address _____

_____

_____

Document Title: Vanguard 320 Installation Manual

Part Number: **T0032 Revision L**

Please rate this document for usability:

☐ Excellent ☐ Good ☐ Average ☐ Below Average ☐ Poor

What did you like about the document? _____

_____

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_____

_____

What information, if any, is missing from the document? _____

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Please identify any sections/concepts that are unclear or explained inadequately.

_____

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Additional comments/suggestions. _____

_____

_____

_____

_____

Telephone _____ Ext. _____ Best time to call_____

Cut Here

Chapter 1
About Vanguard 320

Overview

Introduction

The Vanguard 320 is a compact network access device for connecting LAN and serial devices to public and private networks services such as frame relay, ISDN, and X.25. The Vanguard 320 is a desktop-size standalone device supporting up to two optional daughtercards, as shown in Figure 1-1. Using the optional daughtercards, the Vanguard 320 offers a flexible and cost effective solution for transporting data, voice, and video across a network. Equipped with a FT1/FE1 daughtercards allow a Vanguard 320 to transfer data over fractional T1 or E1 network.

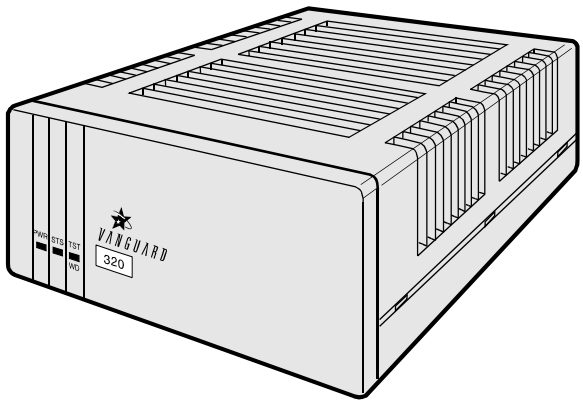


Figure 1-1. The Vanguard 320

Features

Standard Features

The standard Vanguard 320 provides the following:

- External power supply
- Control Terminal Port (CTP) for local and remote configuration and management
- Ethernet interface (10BaseT)
- One Serial DIM Port
- Two daughtercard slots
- 2 MB FLASH
- 4 MB, 8 MB or 12 MB DRAM (This represents the total DRAM)

Note

Effective Release 5.4 of the Vanguard Applications Ware, your Vanguard 320 *must* have a minimum of 8 MB DRAM installed. Your Vanguard 320 unit may ship with:

- 4 MB and 4 MB upgrade DRAM, for a total of 8 MB DRAM.
- 4 MB and 8 MB upgrade DRAM, for a total of 12 MB DRAM.

  (The total DRAM in your Vanguard 320 unit will depend on what you ordered.)

If your Vanguard 320 has only 4 MB DRAM and you wish to use Vanguard Applications Ware Release 5.4 or higher, please contact a representative to order a DRAM upgrade.

CTP Port

Port 4 can be used as a Control Terminal Port (CTP) for configuration, reporting, and troubleshooting the Vanguard 320. To set Port 4 as CTP, put the front panel dip switch 4 into the DOWN position. To access the CTP you must also configure your terminal or terminal emulation software, to VT100, 9600 bps, 8 bit, no parity, 1 stop bit.

Dual Daughtercard Slots

The Vanguard 320 comes with two slots to support optional daughtercards. This permits easy future expansion of the product.

Operating Software

Operating software is compressed in FLASH memory and loaded into DRAM for operation. The Vanguard 320 supports the standard Applications Ware packages:

- IP+ Applications Ware
- SNA+ Applications Ware
- Multiservice Applications Ware

See the *Software Release Notice* accompanying your Vanguard unit for more information on the software license upgrades available for the Vanguard 320.

Daughtercard Functionality

Introduction

The Vanguard 320 is available with the optional components listed below factory-installed or as separate add-in daughtercards.

- FXS/FXO Daughtercard
- Dual FXS Daughtercard
- FT1/FE1 Daughtercards
- Dual E&M Daughtercard
- RemoteVU Daughtercard
- ISDN Daughtercard
- DSU Daughtercard
- DIM Daughtercard
- V.34 Daughtercard
- V.90 Daughtercard
- DRAM SIMMs

Refer to the *Vanguard Daughtercard Installation Guide* (T0020) for information on the installation of optional daughtercards.

FXS/FXO Daughtercard

The Vanguard 320 supports the FXS/FXO Daughtercard. This daughtercard supports one voice channel, using either an analog FXS or FXO interface. Both interfaces use RJ11 connectors.

Dual FXS Daughtercard

The Dual FXS Daughtercard provides two FXS interface ports and support one voice channel each. The FXS port uses RJ11 connectors.

Note

Calls between two FXS ports within the same Vanguard 320 are not supported.

FT1/FE1 Daughtercards

The FT1/FE1 daughtercards allow a Vanguard 320 to transfer data over a T1 or E1 network. The FT1/FE1 daughtercards support full or fractional T1 or E1 speeds. The FE1 daughtercard provides line rates of 2.048Mbps and data rates of n x 64Kbps (where n is 1 to 31) per channel. The FT1 daughtercard provides line rates of 1.544Mbps and data rates of n x 56Kbps or n x 64Kbps (where n is 1 to 24) per channel. The Vanguard 320 supports single channel operation only.

Dual E&M Daughtercard

The Dual E&M Daughtercard provides two E&M interface ports. The E&M ports use RJ45 connectors.

RemoteVU Daughtercard

The Vanguard 320 supports video over Frame Relay using the RemoteVU daughtercard. The RemoteVU Daughtercard provides two BNC connector, video ports accepting NTSC, PAL or SECAM video signal standards and an RJ-45, RS232/485 camera control port used for Pan/Tilt/Zoom (PTZ) camera control.

ISDN and Enhanced ISDN Daughtercard

The Vanguard 320 with the ISDN daughtercard, provides serial and LAN devices with access to public Integrated Service Digital Networks (ISDN).The ISDN daughtercard provides a BRI U or S/T interface with RJ45 connectors on Port 1. The ISDN S/T daughtercard provides a BRI S interface configured in a passive bus arrangement. The enhanced ISDN BRI ST Data Daughtercard is supported on Release 6.3 and greater software. Refer to the *Vanguard Daughtercard Installation Guide* (Part Number T0020) for more information.

Note

Only one ISDN daughtercard can be used per Vanguard 320 and this card must be located in the Port 1 position.

DSU Daughtercard

The DSU daughtercard functionality suits an extended range of 56 kbps point-to- point DDS1 interfaces that conforms to AT&T 62310 or ANSI T1E1.4/91-006.

The DSU is FCC Part 68 registered.

Diagnostic loopbacks from the telephone company are supported; local diagnostics are activated from the CTP.

DIM Site Daughtercard

The DIM Site daughtercard provides optional V.24, V.35, V.36, or V.11 electrical interfaces through a DB25 physical connector.

V.34 Daughtercard

The Vanguard 320 supports the Vanguard V.34 Daughtercard. The Vanguard V.34 Daughtercard acts as a synchronous V.34 modem to communicate with other V.34 modems using bit-oriented or character oriented protocols over the analog PSTN. The V.34 Daughtercard provides two RJ11 interface ports. For information on configuring this daughtercard refer to the *3460 Fast'R User Guide* (Part Number T0022-01).

V.90 Daughtercard

The V.90 modem daughtercard provides dial back-up for a customers PPP Async applications. The V.90 uses a dual RJ-11 for connection to central offices, PBXs or telephone systems. V.90 is designed for the Vanguard 320. The Vanguard V.90 daughtercard requires release 6.2 or greater software. For installation instructions refer to the *Vanguard Daughtercard Installation Guide* (Part Number T0020).

DSU DIM

The Vanguard 320 supports the DSU DIM.

Software Functionality

Introduction

Depending on the operating software Applications Ware package and optional daughtercard installed the Vanguard 320 can support the following functionality and services.

Frame Relay & X.25 Service

The Vanguard 320 provides serial devices with economical Ethernet LAN access into public or private Frame Relay WAN. Where frame relay services are not yet available, the Vanguard 320 can provide network access over X.25 services. When frame relay services becomes available, the Vanguard 320 can be easily configured and integrated to support frame relay. This fast migration reduced network downtime and protects hardware investments.

RFC 877 and 1356

The Vanguard 320 supports encapsulation of IP datagrams and other network layer protocols over X.25 as specified in RFC 877 and RFC 1356. This allows for interoperability with Front End Processors (FEPs) that support X.25 and IP traffic as well as router vendors supporting RFC 877/1356.

RFC 1490

The Vanguard 320 supports encapsulation of multiple protocols over frame relay as specified by RFC 1490.

Multiprotocol Support

Support includes SDLC, Bisync, X.25, Async, IP/IPX, PPP, MLPPP, and Routing and Bridging, as well as many other serial protocols. Refer to the *Software Release Notice* which accompanied your unit for a complete listing of protocols supported by the Vanguard 320.

Target Application Environments

Introduction

This section describes example applications for the Vanguard 320.

LAN and Legacy Protocol over Frame Relay

The Vanguard 320 supports multiprotocol encapsulation of IP traffic and legacy serial protocols over frame relay as specified by RFC 1490. As shown in Figure 1-2, a SNA cluster controller connects to a serial port on the Vanguard 320 and the Ethernet LAN connects to the 10BaseT Ethernet port. The Vanguard is fully interoperable with third party routers via RFC 1490.

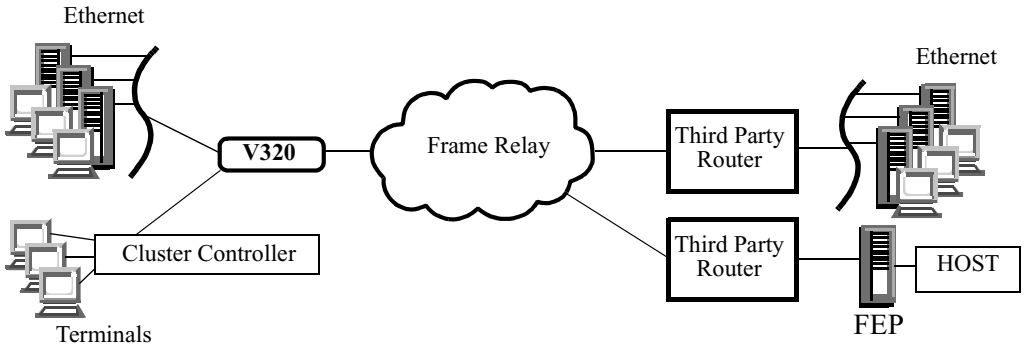


Figure 1-2. LAN and Legacy Protocol over Frame Relay

Video and Legacy Protocols over Frame Relay - Banking Application

As shown in Figure 1-3, the Vanguard 320 can support encapsulation of video and legacy protocol over frame relay. This use of Vanguard 320 suits banking applications such as Automated Bank Machines (ABMs). With Dial on Demand software feature enabled, the Vanguard 320 initiates a connection only when there is data transfer, i.e. only for the duration of a bank transaction. The RemoteVU Daughtercard can capture video and send video streams to the central bank's security system.

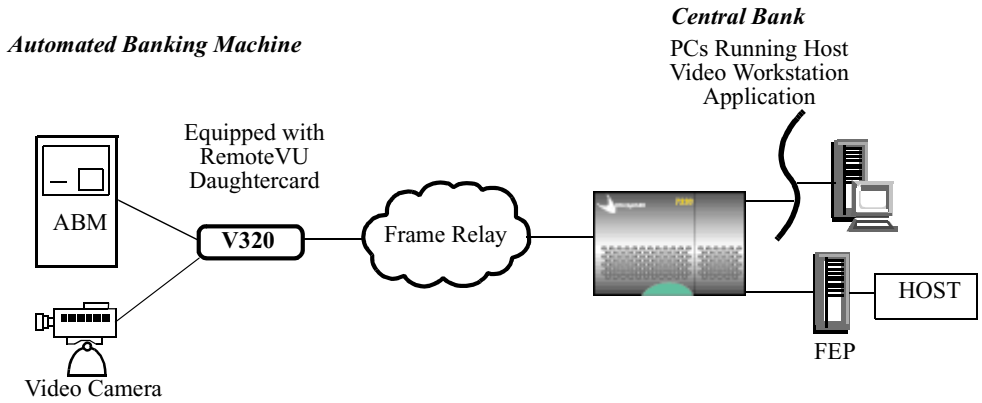


Figure 1-3. LAN and Legacy Protocol over Frame Relay

Branch Office to Central Office over Frame Relay

The Vanguard 320 offers an ideal solution for branch office to central office connectivity over a private or public frame relay network as shown in Figure 1-4. The Vanguard 320 equipped with a T1 daughtercard supports connectivity to the frame relay network at fractional T1 speeds.

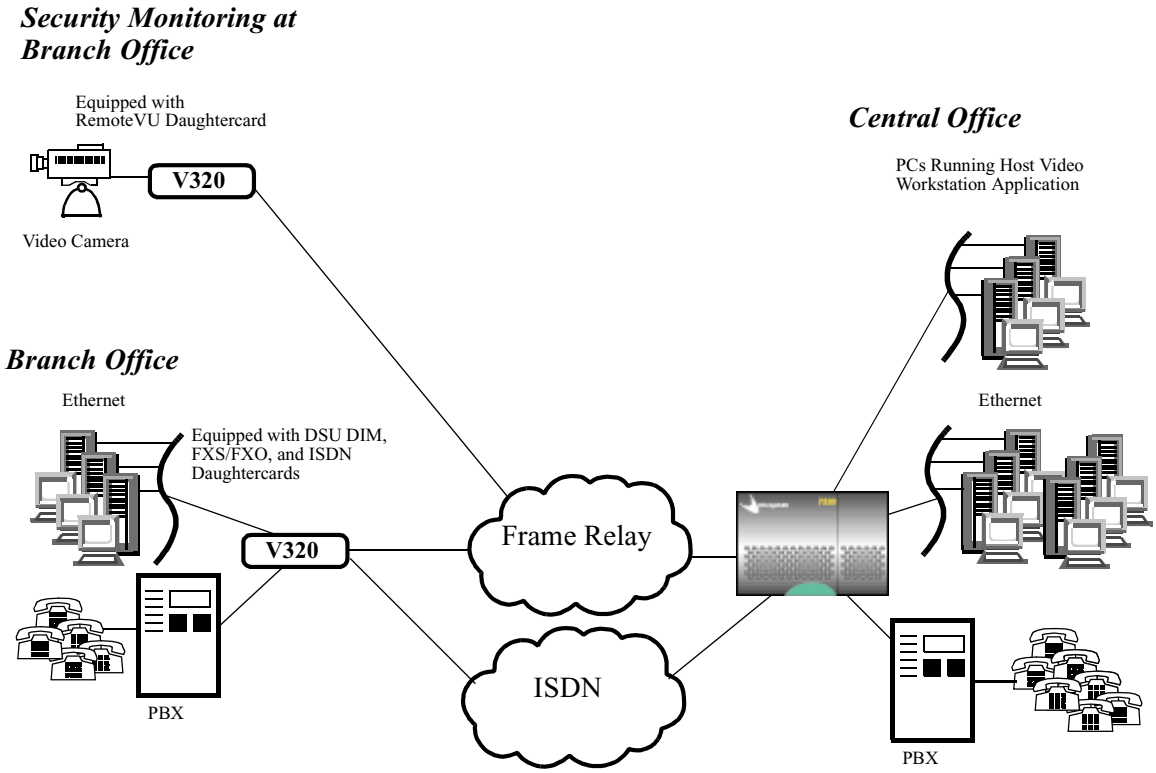


Figure 1-4. Vanguard 320 supporting Voice, Video, and ISDN over Frame Relay

Application Type	Daughtercard Used	Application Description
Branch access to Central Office	DSU DIM, FXS/FXO and ISDN Daughtercards	The Vanguard 320 supports voice, video and data traffic between the branch and central office over private or public frame relay network. The FXS/FXO Daughtercard supports telephones, PBX, and faxes. Connect a telephone or PABX to one FXS port on the FXS/FXO Daughtercard and all branch telephones have access to the central office PBX. This eliminates long distance telephone charges between the branch and central office.
ISDN Backup link between Branch and Central Office	DSU DIM, FXS/FXO and ISDN Daughtercards	To provide an alternative path in case of network failure, you can configure and connect serial ports to an external analog modem or switch 56K DSU. As Figure 1-4 illustrates, you can also configure ISDN for WAN backup.
Security Monitoring at Branch Office	RemoteVU and DSU Daughtercards	The Vanguard 320 equipped with a RemoteVU Daughtercard provides security surveillance and remote monitoring of the branch office location from the central office. The RemoteVU Daughtercard packetizes video stream in IP and sends the data over the frame relay. Security personnel at the central office can control the branch office video camera from a PC running the Host Video Workstation application.

SOHO and Branch Office to Central Office over ISDN

The Vanguard 320 equipped with optional daughtercards provide a wide range of network solutions for companies with small branch offices or telecommuting employees working from a home office. A dial in or dedicated ISDN link provides network connection for the home and branch as shown in Figure 1-5.

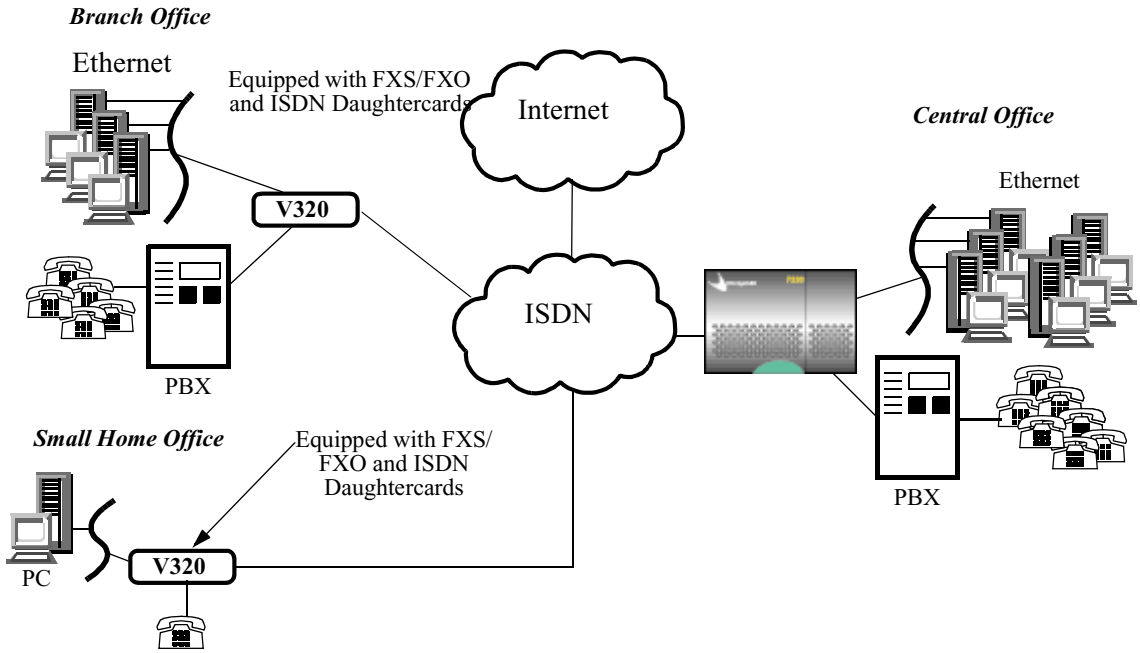


Figure 1-5. Small Home and Branch Office to Central Office Application

Office Type	*Daughtercard Used*	*Description*
Small Home Office	FXS/FXO and ISDN Daughtercard	Equipped with a Vanguard supporting the FXS/FXO and ISDN daughtercard, a work-at-home employee can stay fully connected to the corporate backbone and PBX via an ISDN link. A telecommuter can easily access file servers, email servers, voice mail and the Internet from home. The Voice Over IP (VoIP) software feature provides voice support.
Branch Office	FXS/FXO and ISDN Daughtercard	Small branch offices can access the corporate backbone and PBX in the same way as a work-at-home employee. With Dial on Demand software feature enabled, the Vanguard 320 initiates a connection for data transfer and disconnects when data transfer has stopped.

Chapter 2
Installing Vanguard 320 Hardware

Overview

Introduction

This chapter covers the installation of Vanguard 320 hardware.

Follow These Steps

This table lists the steps you need to perform and shows you where to look for information on installing the Vanguard 320:

Step	*To Perform This Action*	*See This Procedure*
1	Check the contents of the shipping package to make sure everything is included.	"Checking Your Shipment Contents" section on page 2-3.
2	Choose a site for the Vanguard 320.	"Choosing a Site" section on page 2-4.
3	Connect cables for the Vanguard 320.	"Cabling the Vanguard 320" section on page 2-6.
4	Set the front panel dip switches if required.	"Front Panel Dip Switches" section on page 2-12.
5	Installing Optional Daughtercard.	"Installing Optional Daughtercards" section on page 2-13.
6	If necessary, set up termination resistance on the Vanguard 320.	"ISDN Termination Resistance" section on page 2-14.
7	Installing or Removing the Lithium Battery.	"Installing or Removing the Lithium Battery" section on page 2-16.

Warning

The following special notices apply to all equipment handling procedures in this manual.

Warning

Ports capable of connecting to ports on other apparatus are defined as Safety Extra Low Voltage (SELV). To conform with EN60950, ensure that these ports are only connected to ports of the same type on other apparatus.

Avertissement

Les ports qui sont susceptibles d'être connectés à des équipements sont désignés comme TBTS. Pour garantir la conformité à la norme EN 60950, n'interconnecte ces ports qu'avec des ports du même type sur des autres matériels.

Warnung

Anschlusse, die mit anderen Geraten verbindet werden konnen, sind als SELV beschrieben. Um Konformitat mit EN 60950 zu versichern, sichern Sie es, daß diese Anschlusse nur mit den des selben Type auf anderen Geraten verbindet werden.

Checking Your Shipment Contents

List of Contents

Before you install the Vanguard 320 hardware, make sure your shipment contents are complete. Inside your shipping carton, you should find the contents shown in Figure 2-1.

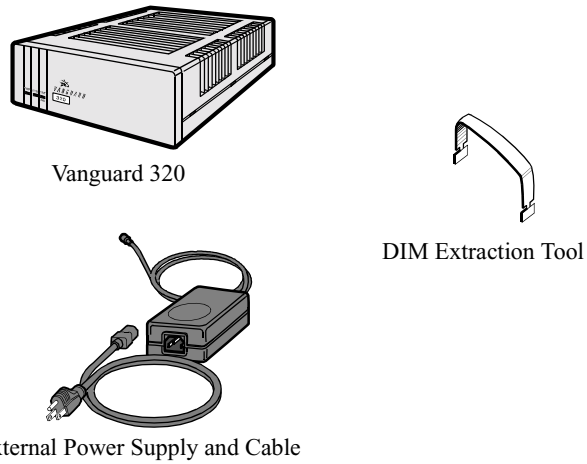


Figure 2-1. Vanguard 320 Shipment Contents

In Case of Damage or Missing Parts

If the equipment is damaged, contact the shipper. If you have additional concerns about damaged or missing parts, contact your nearest our representative.

In the United States, contact: Vanguard Managed Solutions, Customer Administration, 575 West Street, Mansfield, MA 02048-1193, (508) 261-4000, Extension 4745.

Outside the United States, contact the nearest Vanguard Managed Solutions distributor.

Choosing a Site

Introduction

This section describes how to choose a site for the Vanguard 320.

Choosing a Site

Choose a site within an appropriate distance of a power source. The selected site should be free of accumulated dust and environmental extremes.

Caution

All Vanguard products should be used in environments designed for computers and electronic equipment. In areas susceptible to lightning, take precautions to prevent damage to electronic equipment. Contact your telephone company or an electronic accessories vendor for information on lightning protection equipment. If you experience problems caused by surges from lightning, install appropriately rated surge suppressors on power and data lines connected to your Vanguard.

Mise en Garde

Tous les produits Vanguard doivent être utilisés dans des environnements conçus pour les ordinateurs et équipements électroniques. Dans les zones sujettes à la foudre, prenez soin de protéger l'équipement électronique contre tout dommage. Contactez votre compagnie de téléphone ou un vendeur d'accessoires électroniques pour de plus amples informations sur les équipements de protection contre la foudre. Si vous avez des problèmes engendrés par des surtensions dues à la foudre, installez des protections contre les surintensités appropriées sur les lignes d'alimentation et de données connectées à votre produit Vanguard.

Vorsicht

Alle Vanguard-Produkte sollten in für Computer und elektronische Geräte geeigneten Umgebungen verwendet werden. In durch Blitzschlag gefährdeten Gebieten sollten Vorsichtsmaßnahmen zum Schutz von elektronischen Geräten ergriffen werden. Informationen über Schutzeinrichtungen gegen Blitzschlaggefahr erhalten Sie von Ihrer Telefongesellschaft oder vom Einzelhandel für Elektrozubehör. Wenn Sie durch Blitzeinwirkung verursachte Spannungsstörungen feststellen, installieren Sie einen ausreichend abgesicherten Spannungsableiter an den Strom- und Datenleitungen, die mit dem Vanguard-Produkt verbunden sind.

Power Source

Depending on your application and the country in which the Vanguard 320 will operate, a power source must be a grounded 100 to 240 VAC outlet.

Cable Clearance/ Air Circulation

Allow at least 12 inches (30.5 cm) in back of the unit for interfacing cable clearance and air circulation, as shown in Figure 2-2.

Caution

To avoid overheating the unit's circuitry, you should never place anything on top of the unit, within 1 inch (2.5 cm) of the ventilation slots on the front panel, or within 12 inches (30.5 cm) of the back of the unit.

Mise en Garde

Afin d'éviter toute surchauffe des circuits de l'unité, ne placez aucun objet sur l'unité à moins de 2,5 cm (1 pouce) des conduits de ventilation du panneau avant et à moins de 30,5 cm (12 pouces) de l'arrière de l'unité.

Vorsicht

Zur Vermeidung einer Überhitzung der Geräteschaltkreise sollten Sie keine Gegenstände auf dem Gerät plazieren. Zu den Entlüftungsöffnungen der Vorderabdeckung sollte ein Abstand von 2,5 cm und zur Rückseite des Gerätes von 30,5 cm eingehalten werden.

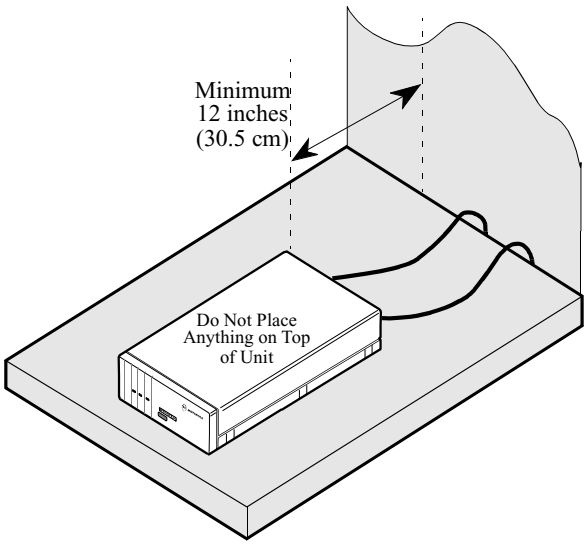


Figure 2-2. Proper Cable and Air Clearance

Cabling the Vanguard 320

Introduction

After unpacking the Vanguard 320, you can connect the cables to complete the hardware installation.

Vanguard 320 Rear Panel

Figures 2-3 to 2-5 illustrate the rear panel of the Vanguard 320, optional daughtercards, and the locations of cables that must be connected.

Caution

Connectors showing this symbol must not be connected to Published Switched Telephone Networks (PSTN).

Mise en Garde

Les connecteurs marqués de ce symbole ne doivent pas être connectés au réseau téléphonique commuté public (RTCP).

Vorsicht

Stecker mit diesem Symbol dürfen nicht an das öffentliche Telefonnetz (PSTN) angeschlossen werden.

Note

The ISDN Daughtercard can only be installed in Port 1.

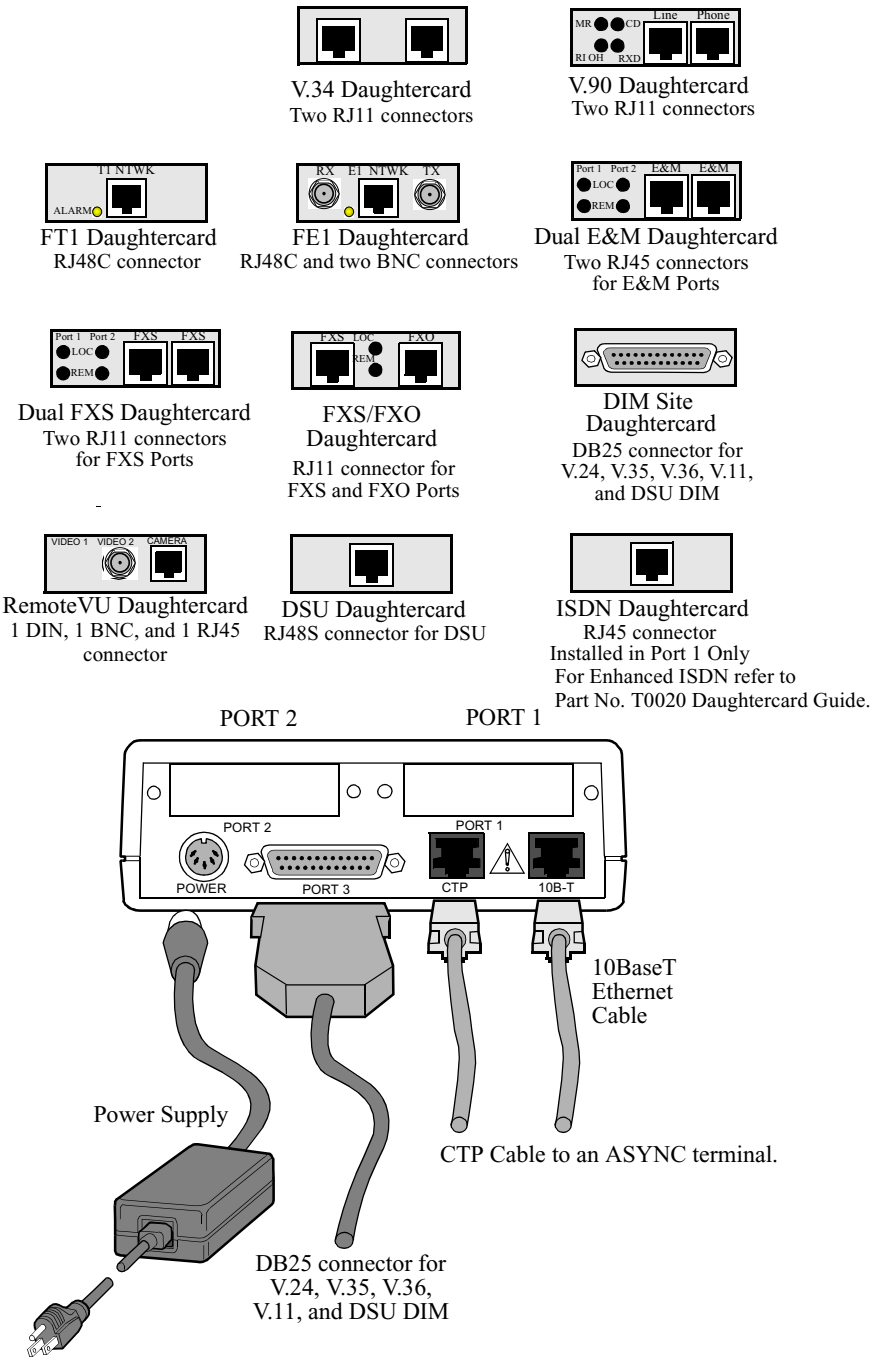


Figure 2-3. Vanguard 320 FRAD Rear Panel and Cable Connections

Port Characteristics and Cabling

Introduction

This section describes the port characteristics and cables required to connect to the Vanguard 320.

Port Characteristics and Cable Requirements

The table below lists the port characteristics, connector and cable requirements.

Port	*Connector*	*Interface*	*Cable Required*	*Speed*	*DCE/DTE*
1	DB25	DIM Site Daughtercard V.11, V.24, V.35, V.36	DB25-to-DB25 Cable	V.11, V.35 and V.36 - Max. sync speed 2 mpbs V.24 - Max. sync speed 80 kpbs, Max async speed 115.2 kbps	Selectable
		DIM Site Daughtercard DSU DIM	DSU/EIM Cable Assembly and Lease Line Telco Cable (Part Number) shipped with Integral DSU only	DSU - 56 kbps	DTE DSU
	RJ48S	DSU Daughtercard	DSU Telco Cable (Part Number) shipped with DSU Daughtercard	DSU -56 kbps	DTE DSU
	RJ11	FXS/FXO Daughtercard	RJ11-to-RJ11 Cable	N/A	N/A
	RJ45	ISDN U or S/T Daughtercard (For enhanced ISDN refer to part number T0020 Daughtercard Guide)	RJ45-to-RJ45 Cable	Either 56 or 64 kbps for each B Channel and 9.6 kbps for the D Channel	N/A
	BNC video connector	RemoteVU Daughtercard	BNC-to-BNC Cable	N/A	N/A
	RJ45 con-nector	RemoteVU Daughtercard	RJ45-to-RJ45 Cable	N/A	N/A
	RJ11	Dual FXS Daughtercard	RJ11-to-RJ11 Cable	N/A	N/A
	RJ48C	FT1 Daughtercard	RJ48-to-RJ48 Twisted Pair Cable	full or fractional T1 speeds	N/A

Port	Connector	Interface	Cable Required	Speed	DCE/DTE
	RJ48C	FE1 Daughtercard	RJ48-to-RJ48 Twisted Pair Cable	full or fractional E1 speeds	N/A
1	BNC Pair	FE1 Daughtercard	2 BNC-to-BNC 75ohm Coax Cable	Full or fractional E1 speeds	N/A
	RJ45	Dual E&M Daughtercard	RJ45-to-RJ45 Cable	N/A	N/A
	RJ11	V.34, V.90 Daughtercard	RJ11-to-RJ11 Cable	N/A	N/A
2	DB25	DIM Site Daughtercard V.11, V.24, V.35, V.36	DB25-to-DB25 Cable	V.11, V.35 and V.36 - Max. sync speed 2 mpbs V.24 - Max. sync speed 80 kpbs, Max async speed 115.2 kbps	Selectable
		DIM Site Daughtercard DSU DIM	DSU/EIM Cable Assembly and Lease Line Telco Cable shipped with Integral DSU only	DSU - 56 kbps	DTE DSU
	RJ48S	DSU Daughtercard	DSU Telco Cable shipped with DSU Daughtercard	DSU -56 kbps	DTE DSU
	RJ11	FXS/FXO Daughtercard	RJ11-to-RJ11 Cable	N/A	N/A
	BNC video connectors	RemoteVU Daughtercard	BNC-to-BNC Cable	N/A	N/A
	RJ45 connector	RemoteVU Daughtercard	RJ45-to-RJ45 Cable	N/A	N/A
	RJ11	Dual FXS Daughtercard	RJ11-to-RJ11 Cable	N/A	N/A
	RJ48C	FT1 Daughtercard	RJ48-to-RJ48 Twisted Pair Cable	full or fractional T1 speeds	N/A
	RJ48C	FE1 Daughtercard	RJ48-to-RJ48 Twisted Pair Cable	full or fractional E1 speeds	N/A
	BNC Pair	FE1 Daughtercard	2 BNC-to-BNC 75ohm Coax Cable	full or fractional E1 speeds	N/A
	RJ45	Dual E&M Daughtercard	RJ45-to-RJ45 Cable	N/A	N/A
	RJ11	V.34 Daughtercard	RJ11-to-RJ11 Cable	N/A	N/A
	RJ11	V.90 Daughtercard	RJ11-to-RJ11 Cable	N/A	N/A

Port	Connector	Interface	Cable Required	Speed	DCE/DTE
3	DB25	V.11, V.24, V.35, V.36 DIM	DB25-to-DB25 Cable	V.11, V.35 and V.36 - Max. sync speed 2 mpbs V.24 - Max. sync speed 80 kpbs, Max async speed 115.2 kbps	Selectable
		Integral DSU DIM	DSU/EIM Cable Assembly and Lease Line Telco Cable shipped with Integral DSU only	DSU - 56 kbps	
4	RJ45	CTP Port	RJ45-to-DB25 CTP Cable shipped with Vanguard unit	Max. async speed 115.2 kbps	DCE
LAN	RJ45	10BaseT	10BaseT Crossover cable or standard UTP cable (RJ45-to-RJ45)	10Mbps	

Cable and Connector Pinouts

For more information on cable and connector pinouts, refer to Appendix B, Vanguard 320 Cabling or to the *Vanguard Daughtercard Installation Guide* (Part Number T0020) for information on the optional daughtercards.

Control Terminal Port Cable

Use an RJ45 (male) to DB25 (female) cable (Part Number 61781-12) that comes with the Vanguard 320 to connect to the Control Terminal Port (CTP). The Vanguard 320 defaults this port to 9.6 kbps, 8 bits, no parity, 1 stop bit.

Note

If you plan to use a personal computer to configure the Vanguard 320, you may need to purchase a DB25 (male) to DB9 (female) adapter for the serial port of your personal computer. The serial ports on most personal computers require DB9 connectors.

10BaseT Ethernet Cable

Follow these guidelines for 10BaseT cable connections:

- If you are connecting to a 10BaseT Hub, use a standard UTP cable (RJ45 to RJ45).
- If you are connecting directly to a personal computer or Workstation LAN card, use the 10BaseT crossover cable shipped with your Vanguard 320.

ISDN Cable

An RJ-11 ISDN cable comes with your Vanguard 320 when the ISDN option is ordered. One end of the cable attaches directly to the Vanguard, and the other end connects to the service provider's outlet.

Interface	*Connector*	*Part Number*
U interface (North America)	RJ11	61766-02
S/T interface (Europe)	RJ45	61545-01

FT1/FE1 Cable

An RJ48C twisted pair cable comes with your Vanguard 320 when the FT1 or FE1 option is ordered. One end of the cable attaches directly to the Vanguard, and the other end connects to the service provider's outlet.

Port Numbering for Physical Ports 1 and 2

Daughtercards installed in ports 1 and 2 must be configured correctly. For example, if you have installed a Dual E&M daughtercard in port 1 you must configure the port as an E&M port. In addition, follow this port numbering scheme when configuring the Vanguard 320:

If the daughtercard is installed in...	*...and it has one port connector, configure port*	*...or it has two port connectors, configure port*
Port 1	1	1 or 6
Port 2	2	2 or 7

Note

For more information on daughtercard configurations, refer to the *Vanguard Daughtercard Installation Guide* (Part Number T0020).

Front Panel Dip Switches

Introduction

This section describes the front panel dip switches on the Vanguard 320.

Front Panel Switches

Figure 2-4 illustrates the switches found behind the front panel of the Vanguard 320.

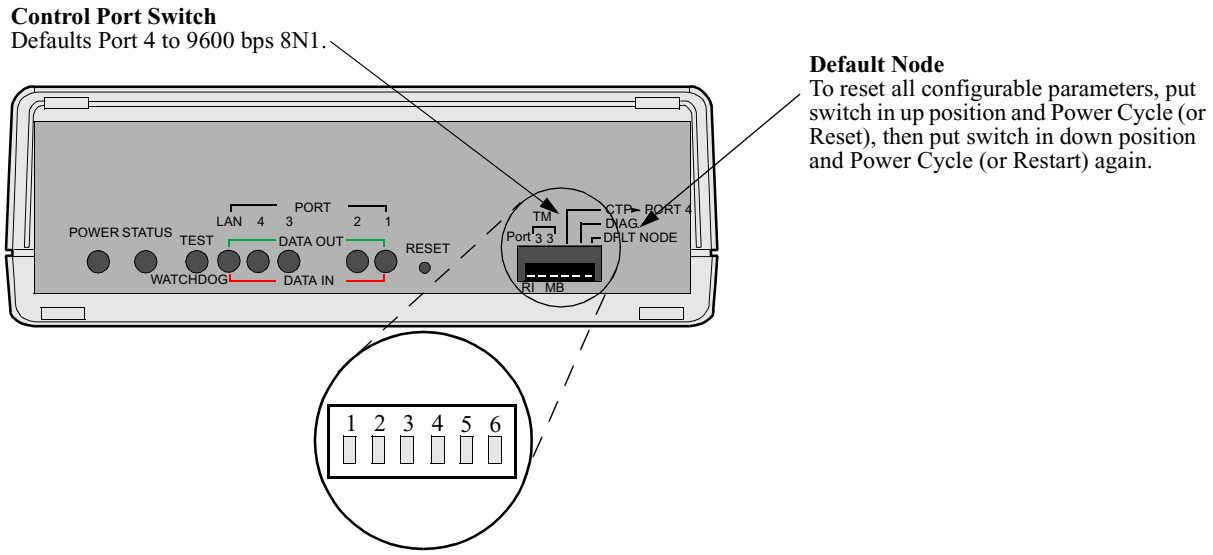


Figure 2-4. Vanguard 320 Front Panel Switches

Front Panel DIP Switch Setting

The six DIP switches on the front panel are defined as follows:

Switch Position	*Switch Name*	*Down*	*Up*
1	RI/TM	Pin 22 - Ring Indicator	DCE Test Mode Input
2	MB/TM	Pin 22 - Make Busy	DTE Test Mode Input
3	N/A	N/A	N/A
4	CTP-Port 4	CTP	Configure Port 4 as PAD port
5	DIAG	Normal operation	Execute diagnostics
6	DFLT-NODE	Normal operation	Reset CMEM configuration

Installing Optional Daughtercards

Optional Daughtercards

The Vanguard 320 supports the following optional daughtercards:

- ISDN Daughtercards (Slot 1 only)
- FXS/FXO Daughtercard
- Dual FXS Daughtercard
- Dual E&M Daughtercard
- FT1/FE1 Daughtercards
- RemoteVU Daughtercard
- DSU Daughtercard
- DIM Site Daughtercard
- V.34 Daughtercard
- V.90 Daughtercard
- Motherboard DIM Option
- DRAM SIMM Option

These daughtercards can be installed either in the factory or on-site. Refer to the *Vanguard Daughtercard Installation Guide* (Part Number T0020) for complete daughtercard installation instructions.

Caution

On-site installation of these optional daughtercards should be undertaken by trained service technicians.

Mise en Garde

L'installation de ces cartes fille optionnelles doit être effectuée par des techniciens expérimentés.

Vorsicht

Die Installation vor Ort dieser optionalen Zusatzkarten sollte von geschulten Kundendiensttechnikern durchgeführt werden.

ISDN Termination Resistance

Introduction

This section contains basic information on setting ISDN Termination Resistances. If you require any additional information on ISDN, refer to the *Vanguard Integrated Services Digital Network: ISDN Manual* (Part Number T0103-06).

Note

Termination options for the Release 6.3 and greater enhanced ISDN BRI ST data Daughtercards are set in the Configure menu, and are not controlled by switches.

Setting Vanguard 320 S/T ISDN Termination Resistance

Termination resistance is controlled by a set of switches located on the rear of the Vanguard 320 S/T ISDN.

For the Vanguard 320 S/T, it is assumed that most configurations will have the unit as the final device, and so 100Ω is the default setting of the termination resistance. This means DIP switches are set to the down position, as shown in Figure 2-5.

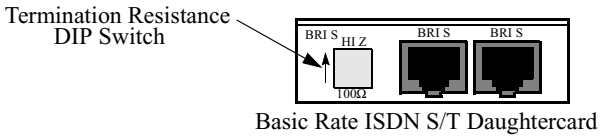


Figure 2-5. Setting Termination Resistance on the Rear Connector

If your Vanguard 320 S/T is not the termination device, set the termination resistance to Hi-Z.

Note

The Vanguard 320 does not have to be powered off to change the switch settings. The change takes effect when you change the switch setting.

Wiring Configurations Requiring Termination Resistance

Figures 2-6 to 2-8 show three typical wiring configurations requiring the use of a terminating resistor. In these diagrams, TR indicates the location of the 100Ω Terminating Resistor, and NT1 indicates the ISDN switch.

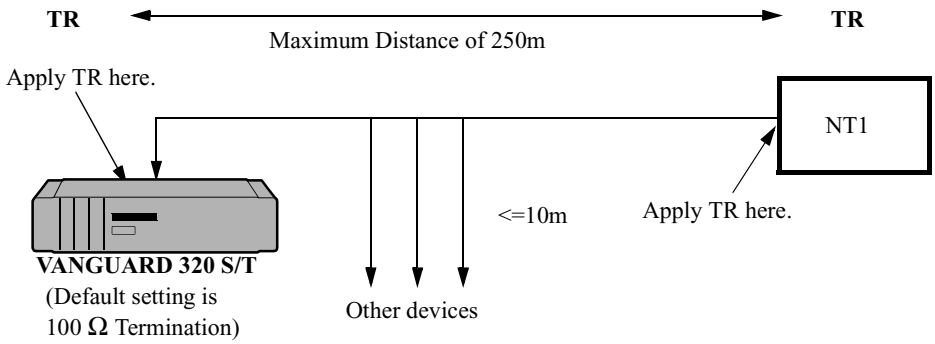


Figure 2-6. Short Passive Bus Configuration

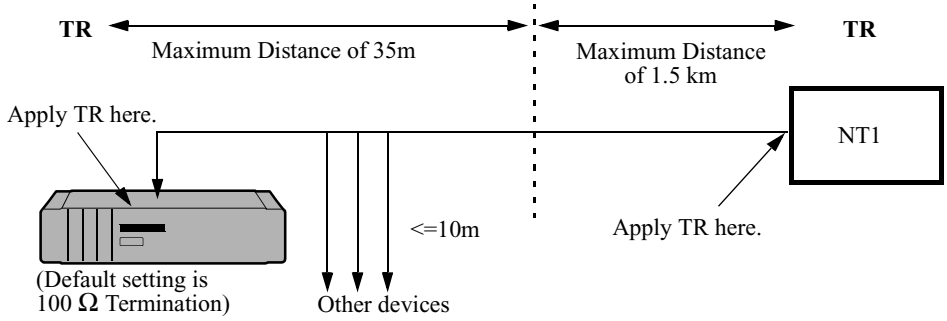


Figure 2-7. Extended Passive Bus Configuration

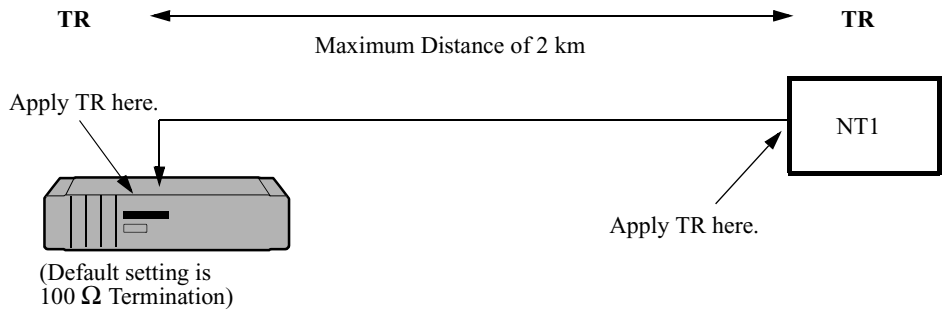


Figure 2-8. Point-to-Point Configuration

Installing or Removing the Lithium Battery

Introduction

This section explains how to replace the real time battery. Vanguard 320 uses a lithium battery on the motherboard to maintain the node's real-time clock. The battery is not used to store the configuration memory.

Warning

Only qualified service personnel should perform the procedure described in this section. If the battery is installed incorrectly, it could explode after the Vanguard product is powered up, damaging the unit.

Avertissement

Seules des personnes qualifiées peuvent mettre en pratique les procédures décrites dans cette section. Si la batterie n'est pas correctement installée, elle risque d'exploser après la mise en marche du produit Vanguard et d'endommager l'unité.

Warnung

Die in diesem Abschnitt aufgeführten Vorgänge sollten ausschließlich von qualifiziertem Servicepersonal durchgeführt werden. Wenn die Batterie unsachgemäß installiert wird, kann sie nach dem Einschalten des Vanguard-Produkts explodieren und das Gerät beschädigen.

Note

After installing the battery, set the Vanguard 320's date and time. This is done via the CTP in the Update System Parameter menu.

Battery Type

Replace the lithium battery with lithium coin cell type CR2032 only. These can be obtained where watch batteries are sold.

Battery Disposal

Dispose of the battery in compliance with applicable local regulations.

Routine Battery Replacement

You need to replace the battery before the battery runs down. The lithium battery should be replaced every six years. Follow the instructions in Figure 2-10 to replace the battery.

Removing the Top Cover

Refer to Figure 2-9 when removing the top cover and front panel and follow these steps:

Step	Action
1	Open front panel door by using a downward motion to pull it toward you and off.
2	Insert a flat-head screwdriver in the slot above each of the six snap hinges on the sides of the unit and push downward. The hinges snap out toward you.
3	Repeat Steps 1 and 2 for the remaining hinges.
4	Lift off the top cover.

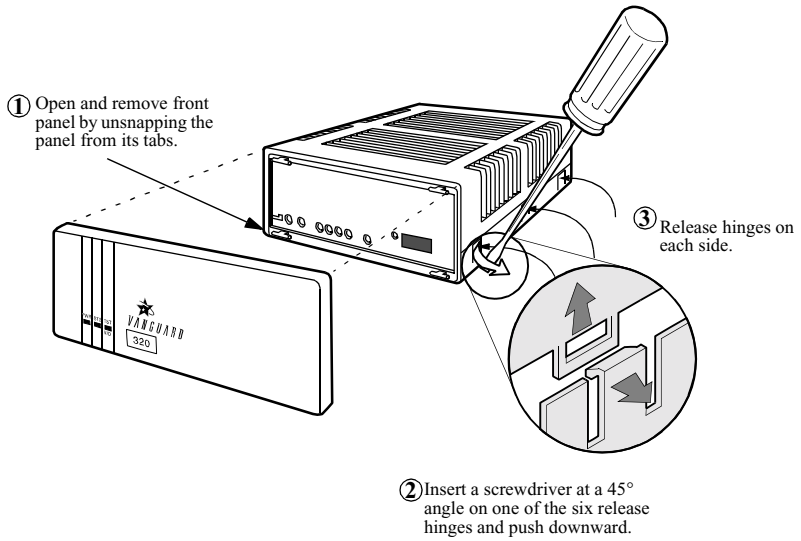


Figure 2-9. Removing Top Cover and Front Panel on Vanguard 320

Removing/ Installing the Battery

Figure 2-10 shows how to install and replace the battery.

To remove the battery:

Using your fingers, push the retaining tabs aside and pry the battery out of the holder.

To Install the battery:

Place the battery in the holder, with the positive (+) side up, and press down until the retaining tabs click into place.

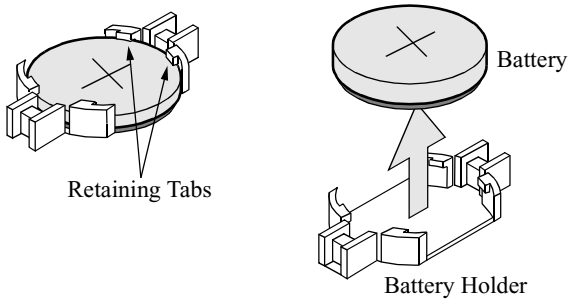


Figure 2-10. Removing and Installing the Battery

Installing a Ferrite Bead

Introduction

This section describes how to install the ferrite bead kit that may have shipped with your Vanguard device. This kit is required in RF sensitive situations and is not always required. You install the bead on the Vanguard 320 Control Terminal Port (CTP) cable.

Note

Not all Vanguard 320 devices require the installation of a ferrite bead. However, if your Vanguard 320 was shipped with a ferrite bead kit, it should be installed before use.

Installing a Ferrite Bead on the CTP Cable

Before beginning, ensure that you have the cable and ferrite bead that shipped with your Vanguard 320. Follow these instructions to properly install the ferrite bead:

Step	*Action*
1	Ensure you have the correct cable for connection to the CTP (Port 4).
2	Snugly wrap the cable once completely around the bead (see Figure 2-11).
3	Set the cable into the bead cutouts.
4	Leave 1 to 1-1/2 inches (25 to 38 mm) of cable between the bead and the connector to be plugged into the Vanguard 320Õs rear panel.
5	Snap the bead closed.
6	Insert the cable into the CTP connector on the rear of the Vanguard 320. The ferrite bead should be close to the Vanguard 320 rear panel connector.

Example Installation

Figure 2-11 shows how to install the ferrite bead on the cable.

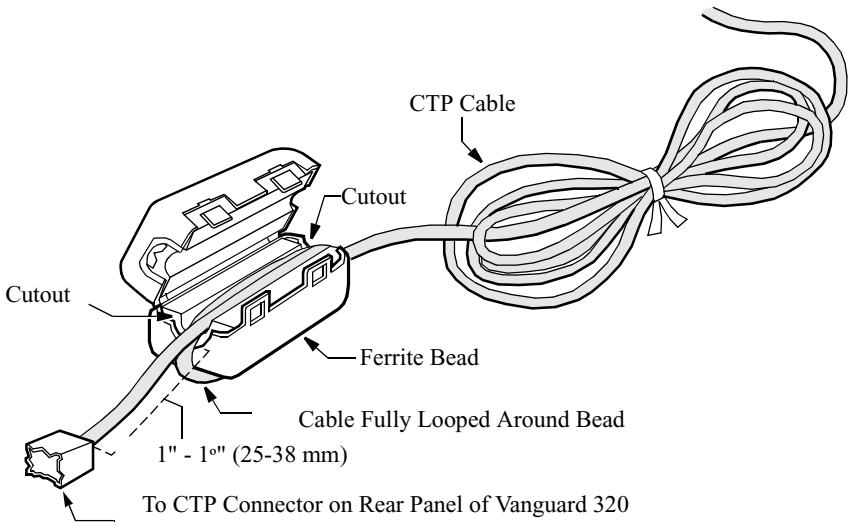


Figure 2-11. Installing a Ferrite Bead on the CTP Cable

Chapter 3
Powering On the Vanguard 320

Overview

Introduction

This chapter describes

- powering up and powering down the Vanguard 320
- interpreting LED display for power up diagnostics
- accessing the CTP

Powering On The Vanguard 320

Introduction

This section describes the sequence of events when you power up the Vanguard 320.

Powering On the Vanguard 320

The Vanguard 320 does not have a power switch on the unit. Follow these steps to power on the Vanguard 320:

Step	*Action*
1	Plug the DC output cable of the power supply into the power socket on the Vanguard 320 back panel.
2	Connect the power cord to the power supply outlet.

Powering Off The Vanguard 320

Warning

When powering down the unit, always unplug the power cord from the AC power outlet first (Figure 3-1). Never disconnect or reconnect the power connector from the Vanguard back panel if the power supply is still connected to the AC power outlet (Figure 3-2). Doing so can potentially damage the Vanguard unit.

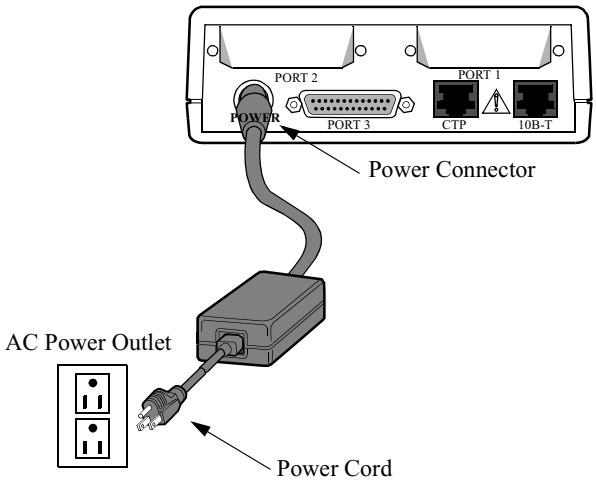


Figure 3-1. Approved Practice for Powering Down a Vanguard Unit

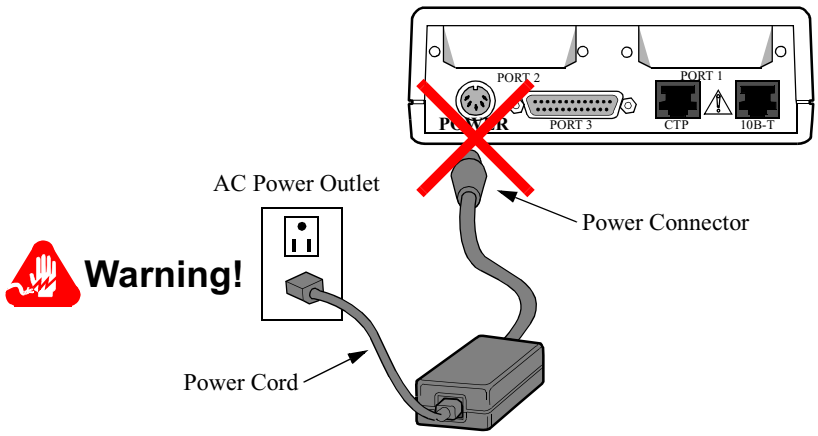


Figure 3-2. Unacceptable Practice for Powering Down or Powering Up a Vanguard Unit

Warning

Hazardous voltage from the telecommunications network may be accessible on un-earthed units. Disconnect all telecommunications cables before removing the main lead from the power supply.

Avertissement

Des tensions dangereuses provenant des réseaux de télécommunication peuvent être présentes sur des unités qui ne sont pas reliées à la terre. Déconnectez tous les câbles de télécommunication avant de retirer le câble de secteur du bloc d'alimentation.

Warnung

An nicht geerdeten Geräten können gefährliche Spannungen vom Telekommunikationsnetz anliegen. Trennen Sie alle Kabelverbindungen zum Telekommunikationsnetz, bevor Sie das Hauptnetzkabel aus der Steckdose ziehen.

Powerup Diagnostics

Introduction

This section describes diagnostics that run automatically when you power up the Vanguard 320.

Front Cover LEDs

The three front cover LEDs on the Vanguard 320 help you follow the progress of the unit's powerup. Figure 3-3 shows the front cover.

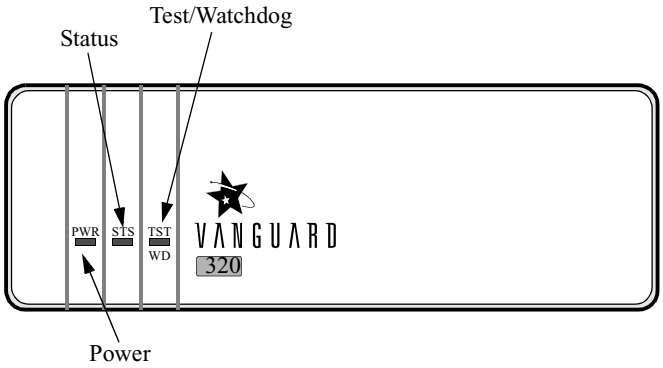


Figure 3-3. Front Panel of the Vanguard 320

Detailed Front Panel LEDs

Figure 3-4 illustrates the detailed front panel LEDs located behind the front cover.

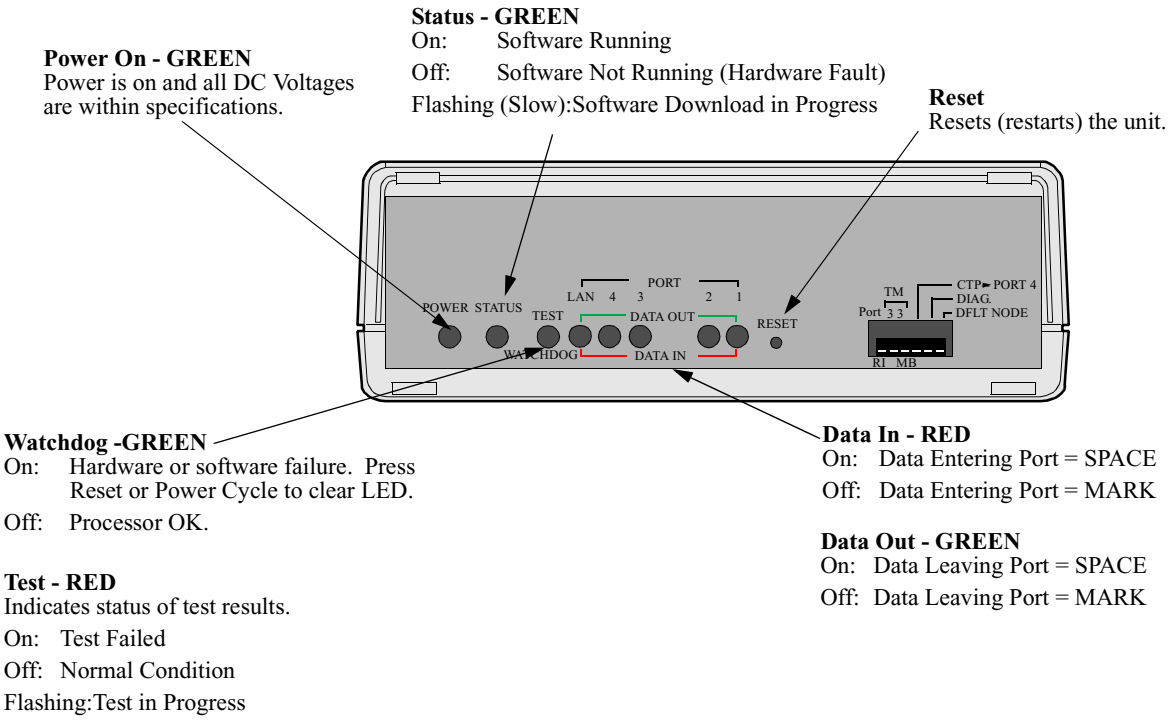


Figure 3-4. Detailed Front Panel LEDs

Power Up Sequence

When the Vanguard 320 power cord is plugged into the power supply outlet, you will see the following powerup sequence:

Stage	*when...*	*...this indicates*
1	POWER (GREEN) lights turns on.	Vanguard is receiving power.
2	TEST (GREEN) comes on and blinks five times	Diagnostics executes for 30 seconds.
3	STATUS (GREEN) comes on and blinks at slow rate. TEST/WATCHDOG (ORANGE) light also remain on.	Indicates software is being downloaded from FLASH.
4	STATUS (GREEN) light stays off for up to 10 seconds, then turns green.	Software is initializing your system configuration.

Detailed FT1/FE1 LED

The FT1/FE1 daughtercards have one LED located on the real panel. Software controls the LED and indicates the following when ON or OFF:

- ON - Alarm condition data path is disrupted, refer to the FT1/FE1 interface statistics for more information on the problem.
- OFF - Normal operation exists.

Accessing the Control Terminal Port

Introduction

Once you have powered on the Vanguard 320, you can access the Control Terminal Port from the PC or terminal attached to the CTP port.

Note

Ensure that the dip switch 4 is in the DOWN position. Refer to "Front Panel Dip Switches" section on page 2-12.

Note

This section does not provide all information about accessing the CTP. For more information on accessing and using the CTP refer to the *Vanguard Basic Configuration Manual* (Part Number T0113).

Procedure

Follow these steps to access the Vanguard 320 CTP Main menu:

Note

This procedure assumes that a PC or terminal is connected to the Vanguard 320 using the CTP access cable.

Step	*Action*
1	Set your terminal, or terminal emulation software, to VT100, 9600 bps, 8 bit, no parity, 1 stop bit.
2	Type **<CR>** until either an asterisk (*) or the OK prompt appears.
3	When you see OK, type **atds0 <CR>**. When you see the asterisk (*) type **.ctp**. The CTP banner will appear. If this banner does not appear, verify that these steps have been followed correctly.
4	Type **<CR>** at the password prompt, if no password has been set.

CTP Access Via Remote Telnet

Another way to connect to the CTP, after the node is configured and operational, is to access remotely via your established IP network by telneting into the node from an IP network-based personal computer or workstation. You can connect to the CTP by entering **atds0 <CR>** after the Vanguard 320 outputs the OK prompt.

CTP Access Via Remote X.25 or Frame Relay Network

If the Vanguard 320 is operating in an X.25 network, or if Frame Relay Annex-G is used to connect with other Vanguard Managed Solutions nodes, you can access the Vanguard CTP remotely by making a Switched Virtual Circuit (SVC) call to the node and specifying subaddress 98.

Chapter 4
Vanguard 320 Software

Overview

Introduction

This chapter provides information on software for the Vanguard 320.

Operating Software

Operating software is compressed in FLASH memory and loaded into DRAM for operation. The Vanguard 320 supports these standard Applications Ware packages:

- IP+ Applications Ware
- SNA+ Applications Ware
- Multiservice Applications Ware

See the *Software Release Notice* accompanying your Vanguard unit for more information on the software licence upgrades available for the Vanguard 320.

Obtaining Operating Software

Where to Get Operating Software

You can obtain operating software for your Vanguard 320 from:

1) the Vanguide CD-ROM, using the following path:

\Vanguide\Sfw_imgs\V320

2) the WWW, using the following URL:
https://secure.vanguardms.com

Note

All software must be unlocked using the Software Unlocking Utility. Be sure that you have serial numbers for each Applications Ware package before using the unlocking utility. If you do not have serial numbers for the Applications Ware package contact your distributor, Vanguard Managed Solutions sales or service.

Operating Software File Formats

Operating software files on the Vanguide CD-ROMs, as well as on the World Wide Web, adhere to the following file naming formats:

Filename:	*Description*
XXn01.xrc	**where:** • **XX** identifies the software release number applicable to that image • **n** identifies the Vanguard V320 product equipped with 8MB DRAM. Units that have 4MB DRAM are identified by the letter **k** • **01** identifies the number of the image created for any specific software release • **xrc** identifies the file as a software image XXn01.zip is a compressed version of the file.

Obtaining Preprogrammed CMEM Files

Introduction

This section tells you what are CMEM files and where to get the CMEM files.

What are CMEM files?

We provide preprogrammed CMEM files to make configuring your Vanguard 320 product easier. These files are developed by us and represent the most common Vanguard 320 applications. These CMEMs set up most of the Vanguard 320 configuration parameters automatically, so you do not have to go through the entire configuration using the Control Terminal Port (CTP). These preprogrammed CMEM files may require some modification to work in your network.

Where To Get CMEM Files and Application Notes

Preprogrammed CMEM files for your Vanguard 320 are available from the Vanguide CD-ROM shipped with your unit. Application notes (in PDF file format) accompany each CMEM file and provide brief description of the applications.

From the Vanguide CD-ROM, use the following path:

\Vanguide\Configs\V320

CMEM File Formats

CMEM files for the Vanguard 320 adhere to the following formats:

Filename	*Description*
XXnh005.mem	where • XX identifies the software release base for the CMEM • **n** identifies the Vanguard 320 product equipped with 8MB DRAM. Units that have 4MB DRAM are identified by the letter **k** • h0 identifies that the CMEM file is for a HOST node#0 (consult the associated V320 Application Notes) • 05 identifies the file with Application Note #05 • .mem identifies the file as a CMEM file XXnh005.des provides a brief text description of the application supported by the CMEM file.
XXnr105.mem	Where: • XX identifies the software release base that the CMEM was created from • **n** identifies the Vanguard 320 product equipped with 8MB DRAM. Units that have 4MB DRAM are identified by the letter **k** • R1 identifies that the CMEM file is for REMOTE node #1 (consult the associated V320 Application Notes) • 05 identifies the file with Application Note #05 • .mem identifies the file as a CMEM file 53nr105.des provides a brief text description of the application supported by the CMEM file.

Installing Software

Installation Method

Install software to the Vanguard 320 using one of the two methods listed below:

- Coldloader - Refer to the *Software Installation and Coldloading Manual* (Part Number T0028) for complete installation and coldloading procedure.
- Vanguide Application Set - Refer to the Vanguide Application Set documentation for complete installation and downloading procedures.

Note

The *Software Installation and Coldloading Manual* and all Vanguide Application Set documentation can be found on the Vanguide CD-ROM or on the WWW at this URL:

http://www.vanguardms.com/support/documentation

Important Considerations When Installing Software

Introduction

With the release of 5.2, there were changes to the Vanguard 320 hardware. A Vanguard 320 with boot PROM of version 3.0 or higher, will require coldloader and software images of release 5.2 or higher. This section describes how to determine the boot PROM revision and how to select the appropriate software or coldloader.

Note

For more information of software installation please refer to the *Installation and Coldloading Manual* (Part Number T0028).

Determining the Boot PROM Revision

Follow these steps to check the boot PROM version of your Vanguard 320:

Step	*Action*
1	Access the CTP.
2	Select “Detailed Node Statistics” from the Status/Statistics menu.
3	Note the PROM revision. Refer to Figure 4-1.

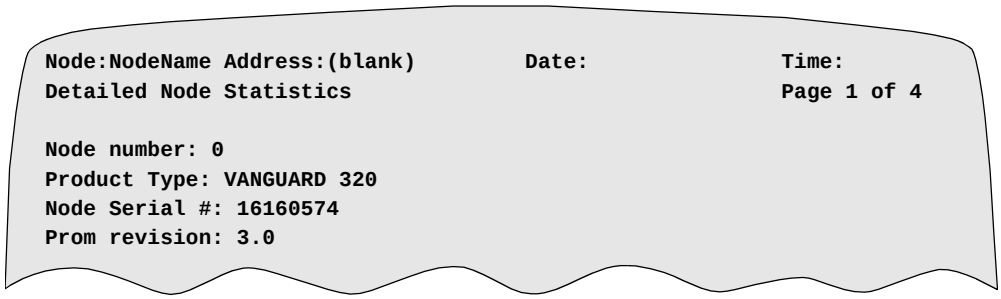


Figure 4-1. Locating the PROM Revision in Detailed Node Statistics

Using the Correct Coldloader

Ensure that you use the correct coldloader to coldload images onto your Vanguard 320. Consult the table below to determine which coldloader to use.

If the Boot PROM is....	*...and you want to load a Software Image of...*	*you can use Coldloader...*
Rev 2.0 and lower	Any revision	Any version of the coldloader
Rev 3.0 and higher	5.2 and higher	5.2 and higher

Obtaining the Latest Software

Download the latest software from the WWW at:

http://vanguardms.com/support/software_and_tools/

Appendix A
Specifications

Specifications

Introduction

This section describes the physical and environmental specifications and power requirements for the Vanguard 320 product.

Hardware

Vanguard 320 products feature the following:

- 68360 processor
- 10Base T Ethernet
- Async Control Port
- 2.0 Mbytes of FLASH memory
- 2 optional daughtercard ports
- 1 configurable DIM port
- 4MB, 8MB, or 12MB DRAM

Note

Effective Release 5.4 of the Vanguard Applications Ware, your Vanguard 320 *must* have a minimum of 8MB DRAM installed. Your Vanguard 320 unit may ship with:

- 4MB and 4MB upgrade DRAM, for a total of 8MB DRAM.
- 4MB and 8MB upgrade DRAM, for a total of 12MB DRAM.

  (The total DRAM in your Vanguard 320 unit will depend on what you ordered.)

If your Vanguard 320 has only 4MB DRAM and you wish to use Vanguard Applications Ware Release 5.4 or higher, please contact a representative to order a DRAM upgrade.

Environmental

The following environmental conditions are required:

- Operating temperature: 32° to 104°F maximum (0° to 40°C maximum)
- Storage temperature: -22° to +158°F (-30° to +70°C)
- Relative humidity: 5% to 95% (noncondensing)

Electromagnetic Compatibility

Vanguard 320 products adhere to the following:

- FCC Part 15, Class B
- CISPR 22 and EN 55022, Class B
- AS 3548, Class B
- EN 50082-1

Power Requirements

Vanguard 320 typically has the following power requirements:

- 100 to 240 VAC nominal at 47 to 63 Hz
- 32 watts input power (64 VA)
- maximum input current 0.7 amps

Power Supply Description

Vanguard 320 products are powered by a switch mode power supply with 22.5 watts maximum output power.

Safety

Vanguard 320 meets the following safety standards:

- EN60950
- CSA 950
- UL Listed per UL 1950

Physical

Vanguard 320 has the following measurements:

- Height: 2.75 in. (6.7 cm)
- Length: 6.7 in. (17 cm)
- Width: 9.5 in. (24.5 cm)
- Weight: 2.2 lb (1.0 kg)

Appendix B
Vanguard 320 Cabling

Overview

Introduction

This Appendix identifies the cables and pinout requirements for the Vanguard 320. The following cables are described in this appendix:

- CTP Access Cable
- ISDN Cable
- Dual FXS Cable
- 10BaseT Crossover Cable
- RemoteVu Video Cables
- FT1/FE1 Daughtercard Cables
- Dual E&M Daughtercard Cables
- DSU Daughtercard Cable
- V.35/V.36 Cable
- V.11 Cable
- V.24 Cable

Daughtercard Cable Information

Cables for optional daughtercards are shipped with the daughtercards. If your Vanguard 320 is shipped with pre-installed daughtercards you will receive the cables. For daughtercard installation and more cable information, please refer to the *Daughtercard Installation Guide* (Part Number T0020).

Ordering Cables

To order cables please contact a Vanguard Managed Solutions representative. In addition to the cables listed above the following cables can be ordered:

- DB25 Male to M34 Female cable
- DB25 Male to M34 Male cable

CTP Access Cable

CTP Cable Connector and Pinout

Use a RJ45/DB25 cable to connect to the CTP Port (Port 4) and perform CTP operations such as coldloading software images into a Vanguard 320.

Port 4 is a DCE. This table identifies the pinout for this RJ-45 connector:

RJ45 Pin	*Signal*	*Pin Connection on DB25F Adapter*
1 (not connected)	Request To Send (RTS)	4
2	DTE Ready (DTR)	20
3	Received Data (RXD)	3
4 (not connected)	Data Carrier Detect (DCD)	8
5	Signal Ground	7
6	Transmitted Data (TXD)	2
7	Data Set Ready (DSR)	6
8 (not connected)	Clear To Send (CTS)	5

ISDN Cable

Specification

The ISDN cable shipped with the ISDN Daughtercard has the following specification:

Interface	Connectors	Part Number
U interface (North America)	RJ11-to-RJ11	61766-02
S/T interface (Europe)	RJ45-to-RJ45	61545-01

Connector Pinout

The following table shows the pinouts for the RJ45 ISDN U and S/T connector.

Pin	U Interface		S/T Interface	
	Name	Function	Name	Function
1	Battery Status	No connection	PS 3+	No connection
2	Battery Status	No connection	PS 3-	No connection
3	---	No connection	TE NT +	TE to NT pair, no power connection
4	Signal	U interface tip or ring	NT TE +	NT to TE pair, no power connection
5	Signal	U interface tip or ring	NT TE -	NT to TE pair, no power connection
6	---	No connection	TE NT -	TE to NT pair, no power connection
7	Powering	No connection	PS 2 -	No connection
8	Powering	No connection	PS 2 +	No connection

The connector pins are numbered from right to left as indicated in the following diagram:

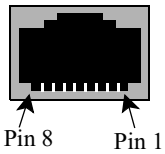


Figure B-1. ISDN Connector Pinout

The ISDN connector can accept either an RJ11 or RJ45 connector. If you are using an RJ11, pin 1 and pin 8 are not used.

S/T ISDN Termination Resistance

For operation of the Vanguard 320 in Europe, you may need to set the terminal resistance. For more information on setting the terminal resistance, refer to the *Daughtercard Installation Guide*.

FXS/FXO Cable

Specification

The cable shipped with the FXS/FXO Daughtercard has the following specification:

- Connectors: RJ11 to RJ11 Cable
- Color: Gray

Connector Pinout

The RJ11 connectors for the FXO and FXS port have the following pinout:

Pin No.	FXS		FXO	
	Name	Function	Name	Function
1		N/A		N/A
2		N/A	Aux B	External Handset
3	Loop B		Line B	
4	Loop A		Line A	
5		N/A	Aux A	External Handset
6		N/A		N/A

Warning

The FXS Interface should only be connected to an analog telephone handset and/or fax machine.

Warning

The FXO Interface should only be connected to an analog PBX line.

Warning

The Vanguard FXS/FXO daughtercard has not been certified for use in a PSTN.

Dual FXS Cable

Specification

The cable shipped with the Dual FXS Daughtercard has the following specification:

- Connectors: RJ11 to RJ11 Cable
- Color: Gray

Connector Pinout

The RJ11 FXS port have the following pinout:

Pin No.	FXS	
	Name	Function
1		N/A
2		N/A
3	Loop B	
4	Loop A	
5		N/A
6		N/A

Warning

The FXS Interface should only be connected to an analog telephone handset and/or fax machine.

Dual E&M Daughtercard Cable

Specification

The cable shipped with the Dual E&M Daughtercard has the following specification:

- Connectors: RJ45 to RJ45 Cable
- Color: Gray

Connector Pinout

The RJ45 E&M ports have the following pinout:

Pin No.	*Signal*
1	SG
2	E
3	R1
4	T1
5	Ring
6	Tip
7	M
8	SM

10BaseT Crossover Cable

Specifications

The 10BaseT cable shipped with the Vanguard 320 has the following specifications:

- Cable Type: Category 3 or better
- Connectors: RJ45 to RJ45
- Color: Gray
- Part Number: 61798-01

Connector Pinout

Four of the pins are used, as shown below:

Pin	*Pin*
1	3
2	6
3	1
6	2

The connector pins are numbered as indicated in the following diagram:

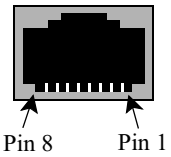


Figure B-2. RJ45 Pinout

RemoteVu Video Cables

Introduction

The RemoteVu Daughtercard requires the following cables:

- RJ45-to-RJ45 Camera Interface Cable
- BNC-to-BNC Cable

RJ-45 Connector - Camera Interface Connector Pinout

This table describes the RJ-45 connector - camera interface connector:

Pin	*Function*
1	EIA-232 data input
2	EIA-232 data output
3	EIA-485/422 positive data output
4	EIA-485/422 negative data output
5	EIA-485/422 negative data input
6	EIA-485/422 positive data input
7	+12V (current available = 50 mA)
8	Ground

FT1/FE1 Cables

Introduction

The FT1/FE1 daughtercard requires one of the following cables to connect to the T1/E1 network:

- RJ48-to-RJ48 twisted pair cable (provided with FT1 daughtercard) to connect to a T1 network.
- RJ48-to-RJ48 twisted pair cable (provided with FE1 daughtercard) to connect to a E1 network having 120ohm line impedance. ETSI-TBR-013 requires that this cable be constructed of solid conductors of 0.4mm to 0.6mm.
- 2 BNC-to-BNC 75ohm coaxial cables (not provided) to connect to an E1 network having 75ohm line impedance.

RJ48C Connector Pinout

This table describes the RJ48C connector pinout:

Pin	Function
1	Receive Ring
2	Receive Tip
3	no connection
4	Transmit Ring
5	Transmit Tip
6	no connection
7	no connection
8	no connection

The connector pins are numbered as indicated in the following diagram:

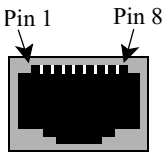
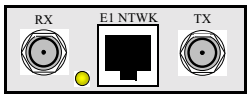


Figure B-3. RJ48C Pinout

BNC Connectors

The FE1 daughtercard provides two BNC connectors to connect to an E1 network with 75Ω line impedance. Use the BNC connector on the right for transmit (TX) and the BNC connector on the left for receive (RX).



FE1 Daughtercard
RJ48C and two BNC connectors

Figure B-4. FE1 Daughtercard

DSU Daughtercard Cable

DSU Daughtercard Cable Pinout

The following table shows the pinouts for the RJ48S connector:

Pin	Signal Function
1	TX - RING
2	TX - TIP
7	RX - TIP
8	RX -RING

V.35/V.36 Cable

V.35/V.36 DCE Cable Pinout

The following table shows the DCE pinouts forV.35 and V.36 cables.

Pin	*Function/Signal Name*
1	SHIELD/FRAME GROUND
2	TRANSMITTED DATA A
3	RECEIVED DATA A
4	REQUEST TO SEND
5	CLEAR TO SEND
6	DATA SET READY
7	SIGNAL GROUND
8	DATA CARRIER DETECT
13	TRANSMIT CLOCK B
14	TRANSMITTED DATA B
15	TRANSMIT CLOCK A
16	RECEIVED DATA B
17	RECEIVE CLOCK A
18	RECEIVE CLOCK B
19	RECEIVE CLOCK B
20	DATA TERMINAL READY
21	TRANSMIT CLOCK B
22	EXTERNAL TRANSMIT CLOCK B
24	EXTERNAL TRANSMIT CLOCK A
25	(No Connection)

V.35/V.36 DTE Cable Pinout

The following table shows the DTE pinouts forV.35 and V.36 cables.

Pin	Function/Signal Name
1	SHIELD/FRAME GROUND
2	TRANSMITTED DATA A
3	RECEIVED DATA A
4	REQUEST TO SEND
5	CLEAR TO SEND
6	DATA SET READY
7	SIGNAL GROUND
8	DATA CARRIER DETECT
13	TRANSMIT CLOCK B
14	TRANSMITTED DATA B
15	TRANSMIT CLOCK A
16	RECEIVED DATA B
17	RECEIVE CLOCK A
18	RECEIVE CLOCK B
19	RECEIVE CLOCK B
20	DATA TERMINAL READY
21	TRANSMIT CLOCK B
22	EXTERNAL TRANSMIT CLOCK B
24	EXTERNAL TRANSMIT CLOCK A
25	TEST MODE (V.36 ONLY).

V.11 Cable

V.11 DCE Cable

The following table shows the DCE pinouts for the V.11 cable.

Pin	V.11	Function/Signal Name
1		SHIELD/FRAME GROUND
2	T (A)	TRANSMITTED DATA A
3	R (A)	RECEIVED DATA A
4	C (A)	CONTROL A
6	I (B)	INDICATION B
7		SIGNAL GROUND
8	I (A)	INDICATION A
13	S (B)	TRANSMIT CLOCK B
14	T (B)	TRANSMITTED DATA B
15	S (A)	TRANSMIT CLOCK A
16	R (B)	RECEIVED DATA B
17	*	RECEIVE CLOCK A
18	*	RECEIVE CLOCK B
19	*	RECEIVE CLOCK B
20	C (B)	CONTROL B
21	S(B)	TRANSMIT CLOCK B
22	X (B)	EXTERNAL TRANSMIT CLOCK B
24	X (A)	EXTERNAL TRANSMIT CLOCK A
*These V.11 signals are not used in the X.21 standard.		

V.11 DTE Cable

The following table shows the DTE pinouts for the V.11 cable.

Pin	Function/Signal Name
1	SHIELD/FRAME GROUND
2	TRANSMITTED DATA A
3	RECEIVED DATA A
4	CONTROL A
6	INDICATION B
7	SIGNAL GROUND
8	INDICATION A
13	TRANSMIT CLOCK B
14	TRANSMITTED DATA B
15	TRANSMIT CLOCK A
16	RECEIVED DATA B
17	RECEIVE CLOCK A
18	RECEIVE CLOCK B
19	RECEIVE CLOCK B
20	CONTROL B
21	TRANSMIT CLOCK B
22	EXTERNAL TRANSMIT CLOCK B
24	EXTERNAL TRANSMIT CLOCK A

V.24 Cable

V.24 DCE Cable

The following table shows the DCE pinouts for the V.24 cable. These pins are assigned double functions in the V.24 cable:

- Pin 15: Outputs TRANSMIT CLOCK if the port is configured for internal clocks. Otherwise it acts as a V.54 Loop 3 signal when connected to a modem.
- Pin 22: Used as the Ring Indicator output if the port is configured to emulate a dial modem. For this to work properly, the RI/TM switch of the port must be set to RI. When the RI/TM switch is set to TM, this pin acts as an input, and the TM output from the attached modem (pin 25 on the modem) comes into the 6500 on this pin.

Pin	*Function/Signal Name*
1	Shield/Frame Ground
2	TXD
3	RXD
4	RTS
5	CTS
6	DSR
7	Signal Ground
8	DCD
14	DATA RESTRAINT
15	TRANSMIT CLOCK or V.54 Loop 3 *
16	STANDBY INDICATOR
17	RECEIVE CLOCK
18	EXTERNAL RECEIVE CLOCK
20	DTR
21	V.54 Loop 2
22	RI/TM *
24	EXTERNAL TRANSMIT CLOCK
25	TEST MODE

V.24 DTE Cable

The following table shows the DTE pinouts for the V.24 cable.

Pin	Function/Signal Name
1	Shield/Frame Ground
2	TXD
3	RXD
4	RTS
5	CTS
6	DSR
7	Signal Ground
8	DCD
14	DATA RESTRAINT
15	TRANSMIT CLOCK
16	STANDBY INDICATOR
17	RECEIVE CLOCK
18	EXTERNAL RECEIVE CLOCK or V.54 Loop 3 *
20	DTR
21	V.54 Loop 2
22	(No Connection)
24	EXTERNAL TRANSMIT CLOCK
25	MAKE BUSY

Appendix C
Troubleshooting Your Vanguard 320

In This Appendix

Introduction

This appendix describes some of the actions you can take to correct problems you may be having with your Vanguard 320.

While Powering Up the Vanguard 320

Introduction

This section documents how to troubleshoot problems you many encounter when powering up the Vanguard 320.

Hardware Failure

If the TEST light turns on and remains on, one or more of the diagnostic tests have failed, indicating there is a hardware problem. Contact Customer Support for possible repairs to your Vanguard 320.

Diagnostic Failure

If the TEST light does not blink at all, but the Status light is on, the diagnostic software image is corrupted. Perform a download of the software option bundle.

Powerup Failure

If the STATUS light blinks continuously, at a constant rate, the software bundle in Flash memory is corrupted. Perform a cold load of the software option bundle. See the *Software Installation and Coldloading Manual* (Part Number T0028) for more information.

While Coldloading a New Software Image

Troubleshooting

This table lists some of the potential problems you may encounter during the coldload procedure:

Problem	*Cause*	*What to do...*
At the end of the loading, the node outputs the message, " V320 - wrong cloader was loaded."	Your coldloader is not compatible with the Boot PROM installed in the Vanguard 320. This error message appears if you attempt to use a 5.1M and lower coldloader for Boot PROM Rev. 3.0.	Download the latest coldloader software (5.2 or higher). The latest coldloader software is available at: **https:// secure.vanguardms.com**
At the end of the loading, the node outputs the message, "V320 - incompatible image was loaded."	You attempted to load a software image that is not compatible with the Boot PROM installed in the Vanguard 320. This error appears when you attempt to load a 5.1M and lower software image onto a Vanguard 320 that is installed with Boot PROM Rev. 3.0.	Download the latest software image (5.2 or higher). The latest software images are available at: **https:// secure.vanguardms.com**
A "V320 - failed erase and/or programming procedure" error message appears.	This is caused by an error in the flash programming.	Reset the node using the reset switch located on the front panel or power cycle the node.
At the end of the loading, the node outputs the message "VG320 - awaiting coldload."	This is because a wrong or corrupted image has been loaded into the node and is being ignored by the Vanguard 320.	Check to ensure that the image you are downloading is intended for the platform.

Problem	*Cause*	*What to do...*
After downloading the image, the node runs startup diagnostics but then locks up, and power cycling the node does not recover it.	You may have downloaded a bad image, or the image is not compatible with the CMEM configuration in the node.	• Check the image you just downloaded, and if a wrong image has been downloaded, you can use the ZAP utility to either erase the software image or the CMEM image in the node. This will also allow you to reload a new software image or start from blank CMEM to isolate the cause of the problem. • If the problem persists, contact Customer Support.
When using the Vanguard Software Loader to coldload software images into the Vanguard 320, coldloading can fail if the speed is 115200 bps.	Speed is to high.	• Select a lower coldload speed of 57600 bps or 38400 bps.

Using the ZAP Utility

What Is It?

If you type **ZAP** while the startup diagnostics are running the DRAM tests, you will interrupt the normal startup flow and get into the ZAP mode. This invokes a special utility to either erase the software image or the CMEM image in the node. This also lets you reload a new software image or start from blank CMEM to isolate the cause of the problem.

```
Executing Vanguard 320 Startup Diagnostics (Rev: 1.04)...
Testing DRAM...
  $00030000-$003FFFFF
Startup Diagnostics Interrupted !

Vanguard 320 Diagnostics ZAP Mode Menu (Rev: 1.04)
==================================================
Enter: <ESC> Exit
         1 - Force ColdLoad              2 - Clear CMEM
```

If you select Clear CMEM, the CMEM are cleared:

```
Enter Selection: 2
Erasing Configuration Memory...
Exiting ZAP/INTERRUPT Mode. Please Wait...


Executing Vanguard 320 Startup Diagnostics (Rev: 1.04)...
Testing DRAM...
  $00030000-$003FFFFF
```

If you select Force Coldload, the **V320 - awaiting coldload** messages will be displayed. However, the actual software in the flash is not erased until valid coldloader software is successfully loaded.

Appendix D
Software License and Regulatory Information

In This Appendix

Introduction	This section contains the software license statement and regulatory declarations for the Vanguard 320.

Software License Terms And Conditions

Software License Terms And Conditions

IMPORTANT - PLEASE READ

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Transfer. In the case of software designed to operate on Vanguard Managed Solutions equipment, you may not transfer the Software to another party except: (1) if you are an end-user, when you are transferring the Software together with the Vanguard Managed Solutions equipment on which it operates; or 2) if you are a Vanguard Managed Solutions licensed distributor, when you are transferring the Software either together with such Vanguard Managed Solutions equipment or are transferring the Software as a licensed duly paid for upgrade or update replacement of a prior version of the Software, however, you shall not re-transfer the upgraded or updated replaced prior version of the Software. You may transfer all other Software, not otherwise having an agreed restriction on transfer, to another party. However, all such transfers of Software are strictly subject to the conditions precedent that the other party agrees to accept the terms and conditions of this License, and you destroy any copy of the Software you do not transfer to that party. You may not sublicense or otherwise transfer, rent or lease the Software without our written consent. You may not transfer the Software in violation of any laws, regulations, export controls or economic sanctions imposed by the U.S. Government.

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General. Massachusetts law governs this license. The terms of this license are supplemental to any written agreement executed by both parties regarding this subject and the Software Vanguard Managed Solutions is to license you under it, and supersedes all previous oral or written communications between us regarding the subject except for such executed agreement. It may not be modified or waived except in writing and signed by an officer or other authorized representative of each party. If any provision is held invalid, all other provisions shall remain valid, unless such invalidity would frustrate the purpose of our agreement.

Product Declarations and Regulatory Information

Introduction

The following sections provide information about standards compliance, safety statements, and ISDN Type Approvals.

CE Marking

The mark in the following diagram appears on each Vanguard Series product, and the statement that follows explains its significance.

Figure D-1. CE Mark

This product is CE marked to indicate compliance with the following European Directives:

- 1999/5/EC Radio & Telecom Terminal Equipment (R&TTE)
- 73/23/EEC Low Voltage Directive (Safety)
- 89/336/EEC EMC Directive

Copies of the full Declaration of Conformity are available at the following URL:

http://www.vanguardms.com/

German Federal Approvals Office

Vanguard ISDN carries the approval mark of the German Federal Approvals Office for Telecommunications. The approval mark shows the national emblem, the letters BZT (the Federal Approvals Office letters), and the type approval number (A120187F) that indicates the type of approval given.

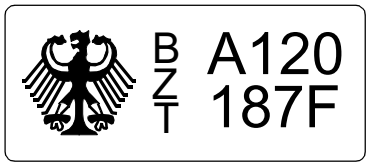

Figure D-2. German Federal Approvals Label

French DRG Approval

Vanguard ISDN also carries the DRG approval mark of the French Ministère des Postes et Télécommunications. This indicates that Vanguard ISDN is approved for connection to the French Euro-Numeris (VN4+) ISDN network service. The label appears on the bottom of your Vanguard, and shows the approval number.

Figure D-3. French Approvals Label

Netherlands Approval

Vanguard ISDN also carries the approval mark of the Ministerie Van Verkeer En Waterstaat. This indicates that Vanguard ISDN is approved for connection to the Netherlands D-Packet ISDN network service. The label appears on the bottom of your Vanguard 320, and shows approval number NL 96211204.

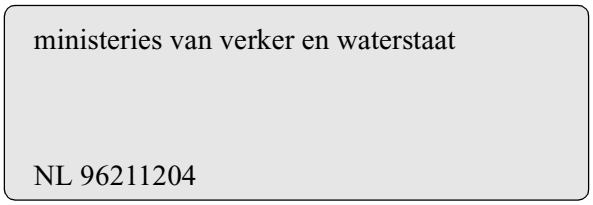

Figure D-4. Netherlands Approval Label

Radio Frequency Interference Regulations

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules, CISPR 22 and EN 55022. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician to help.

Changes or modifications not expressly approved by Vanguard Managed Solutions could void the user's authority to operate the equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

This product was FCC verified under test conditions that included use of shielded data terminal equipment cables. Use of different cables will invalidate FCC verification and increase the risk of causing interference to radio and TV reception.

You can obtain the proper cables from Vanguard Managed Solutions.

Industry Canada

The following information includes the Industry Canada statement regarding ISDN equipment use.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user’s satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company’s inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Avis D'Industrie Canada

Avis:

L'étiquette d'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des résaux de télécommunications, comme le prescrivent les documents concernants les exigences technique relatives au matériel terminal. Le Ministére n'assure toutefois pas que le matériel fonctinnoera à la satisfaction de l'utilisatuer.

Avant d'installer ce matérial, l'utilisatuer doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunications. Le materiél doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la comformité aux conditions énoncée ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être cordonnées par un represéntant désigné par le fournisseur. L'entreprise de télécommuncations peut demander a l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvias fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les files de mise a la terre de la source d'energie électrique, des lighes téléphoniques et des canalistions d'eau metalliques, si'l y en a, sont raccordés ensemble. Cette précaution est particuliérement importante dan les régions rurales.

Avertissement: l'utilisateur ne doit pas tenter de faire ces raccordements lui-même, il doit avoir recours à un services d'inspection des installations électriques, ou à un électricien, selon le cas.

Notification of Canadian Requirements

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

FCC Part 68 and Telephone Company Procedures and Requirements for DSU, T1, and ISDN Interfaces

Introduction

The equipment referenced in this section is compliant with FCC Part 68 rules.

Before You Begin

Before connecting a Vanguard 320 to a network, you should:

- Provide the local telephone company with the equipment's registration number.
- Order the proper connections.

How to Order Connections

To order the proper connections, provide the telephone company with:

- Interface type
- Required USOC jack connector number
- Service code
- Facility interface codes

Interface Type	*USOC Jack Connector*	*Service Code*	*Facility Interface Code*
56-kbps digital interface	RJ48S	6.0F	04DU5-56
ISDN U Interface	RJ49C	6.0Y	02lS5
ISDN S/T Interface	--------	6.0F	02lS5
Fractional T1 Interface	RJ48C	6.0F	04DU9-BN 04DU9-2SN
V.34 Modem Interface	RJ11C	----------	----------

Troubleshooting Your Connection

If any of your equipment is not operating correctly, immediately remove it from the telephone line before damaging the network. If the telephone company is aware of the problem, they may temporarily disconnect your service. Whenever possible, the telephone company notifies you in advance of the disconnection.

If advance notice is not feasible, you are notified as soon as possible. Once notified, you can correct the problem. If necessary, it is your right to file a complaint with the FCC.

Customer-Provided Telephone Equipment

FCC regulations and telephone company procedures prohibit connection of customer-provided equipment to telephone company-provided coin service (central office-implemented systems). Connection to party lines is subject to state tariffs.

Occasionally, the telephone company may make changes in their equipment, operations, or procedures. If these changes affect your equipment or service, the telephone company will provide written notice so you can make the necessary changes to maintain uninterrupted service.

Contact your telephone company if you have any questions about your telephone line.

In some circumstances, the telephone company may ask you for information about your equipment that is connected to the telephone line. Within the United States (at the request of the telephone company), you should provide your equipment's FCC registration number. This number is located on the unit's label.

Limited Warranty

Vanguard Managed Solutions, LLC, warrants that the Product will conform to its then-current published specifications and will be free from defects in materials and workmanship under normal use and service for a period of **(ONE) 1 YEAR** from the date of purchase by the original end user.

During the warranty period, Vanguard Managed Solutions will at its option and at no charge either repair a defective Product (using either new or reconditioned parts) or replace it (with a new or reconditioned Product) if you return it freight prepaid to the factory or service center Vanguard Managed Solutions designates. If Vanguard Managed Solutions is unable within a reasonable time to repair or replace your item, Vanguard Managed Solutions may instead elect to accept return of the unit and refund to you the purchase price you paid for it. Vanguard Managed Solutions will pay freight costs to ship any repaired or replacement unit to you.

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Some states do not allow the exclusion or limitation of incidental or consequential damages or exclusions of implied warranties or limitations on the duration of implied warranties, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This warranty does not apply to any Product which has been subjected by you or a third party to (a) operating or environmental conditions in excess of Vanguard Managed SolutionÕs written specifications or recommendations; (b) damage, misuse or neglect; or (c) improper installation, repair or alteration. This warranty also excludes expendable items, such as lamps, fuses, or other parts which fail from normal use. Vanguard Managed Solutions does not guarantee the integrity of data or warrant that the equipment will operate uninterrupted or error free.

To take advantage of this warranty, you must provide proof of purchase which indicates the date of your purchase in order to obtain warranty service.

This warranty applies only to hardware manufactured by or for Vanguard Managed Solutions and identified by the Vanguard Managed Solutions trademark, trade name or product identification logo affixed to them. For the warranty applicable to software, please refer to the Software License which accompanies the software.

Introduction

The following sections apply to U.S.A. customers only. Non-U.S.A. customers with questions or concerns regarding return procedures should contact their Vanguard Managed Solutions subsidiary or distributor.

Equipment Return Procedures

If you have questions about equipment return procedures, on-site service or unit exchange service call the Vanguard Managed Solutions Technical Support Center at (800) 544-0062 for advice and assistance.

In Case of Damage

If the equipment is damaged in transit, contact the shipper.

If you have additional concerns in case of failure, about missing parts, or to return equipment, contact your nearest Vanguard Managed Solutions representative.

For Locations	*Contact...*
Inside the United States	Vanguard Managed Solutions, LLC 575 West Street, Mansfield, MA 02048-1193 Phone (800) 544-0062.
Outside the United States	the nearest Vanguard Managed Solutions distributor. For a listing of our Sales and Service Offices, visit our Web site at: **http://www.vanguardms.com/**

Expiration of Lease

To return equipment upon expiration of a lease agreement, contact the Vanguard Managed Solutions Customer Operations Center at (800) 544-0062 for return authorization and instructions. You will be asked to provide the following information:

- Product name and description
- Serial number
- Customer order number
- Reason for return

Factory Repair

To return equipment for factory repair, call the Vanguard Managed Solutions Technical Support Center at (800) 544-0062, for return authorization and instructions. When you call, you will be given a Return Material Authorization (RMA) control number. Mark this number clearly on the shipping container for ease of identification and faster service. The RMA control number provides a convenient tracking reference for both parties. Please have the following information available for each piece of equipment you return:

- Product name and description
- Serial number
- Failure symptoms

Packaging Guidelines for Equipment Return

Data communications equipment or parts that are to be returned to Vanguard Managed Solutions for any reason must be properly packaged to prevent damage in shipment and handling.

If the original packing material and shipping container are available, reuse these items to return equipment. If these items are not available, it is your responsibility to package the contents in a manner that protects the equipment from damage during normal shipping and handling. Responsibility for damage to equipment during transit must be resolved between you and the carrier. Vanguard Managed Solutions can provide you with specific packaging instructions upon request.

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